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#### ENVIRONMENT

Subject:  
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site  
King Highway Landfill Operable Unit  
Landfill Gas Monitoring Program – Quarterly Report (2013 Quarter 2)

Dear Mr. Krawczyk:

On behalf of Georgia-Pacific LLC (Georgia-Pacific), this letter presents results from the 2013 second quarter post-closure landfill gas monitoring event conducted on May 31, 2013 at the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site King Highway Landfill Operable Unit 3 (KHL OU) located in Kalamazoo, Michigan. The May 2013 monitoring event reflects continued quarterly monitoring activities performed consistent with the *FINAL Operations and Maintenance Plan* (O&M Plan; ARCADIS 2013a), on behalf of Georgia-Pacific. Consistent with previous landfill gas monitoring events, representatives from the Michigan Department of Environmental Quality (MDEQ) were present to observe the monitoring activities, which were performed by ARCADIS using a portable gas analyzer.

On May 22 and 23, 2013, prior to performing the May 2013 monitoring event, four permanent landfill gas monitoring probes (GW-18 through GW-21) were installed by Terra Contracting Services, LLC (Terra) along the western boundary of the KHL at the locations and depths proposed in the Investigation Plan for Off-Site Landfill Gas Migration at the KHL (ARCADIS 2013b). An access agreement with the City of Kalamazoo was in place for the installation and monitoring of permanent perimeter gas probe GW-20. In addition, another permanent landfill gas monitoring probe (GW-15A) was installed approximately 40 feet to the north of existing gas probe GW-15 to evaluate the potential migration of methane along the City of Kalamazoo underground utilities (water and sanitary sewer lines). The locations of the five additional landfill gas monitoring probes are shown on Figure 1, as surveyed by Terra.

In addition, Terra performed hydro-excavation in the area of the sanitary sewer line near the location of new gas probes GW-18, GW-19, and GW-21 to determine the location of the sanitary sewer pipe. During hydro-excavation, Terra observed the top

Date:  
June 20, 2013

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Our ref:  
B0064583.0004.00907

of the sanitary sewer line at 6.3 feet below ground surface. The material surrounding the sanitary sewer line was determined to be sand with trace amounts of small to large pebbles.

Monitoring results for the May 2013 event are presented in Table 1 and Figure 1; all monitoring results recorded to date are presented in Table 2 and Figure 2 (methane only). In addition, water level measurements collected at a limited number permanent gas probes are also included in Table 1. The water surface elevation was below the elevation of the top of the screen for each gas probe, where water level measurements were collected<sup>1</sup> (Table 1). As such, none of the gas probe screens were observed to be "water logged".

Monitoring of the 11 permanent landfill gas monitoring probes located within the property boundary (GW-1 through GW-4, GW-11 through GW-14, and GW-18, GW-19, and GW-21) resulted in methane detections at concentrations above the LEL in eight of the 11 gas probes (i.e., GW-1 through GW-4, GW-13, GW-14, GW-18, and GW-19). Monitoring of the 11 permanent landfill gas monitoring probes located outside the landfill property boundary (GW-5 through GW-10, GW-15 through GW-17, and GW-20) resulted in no detections of methane at concentrations above LEL in any of the 11 gas probes. The storage shed located in the southwest corner of the KHL was monitored, which resulted in no detection of methane.

In addition, as requested by MDEQ in a letter dated April 23, 2013 (MDEQ 2013), landfill gas concentrations were measured in the 72-inch diameter sanitary sewer line via manholes connected to the sewer line. Monitoring was conducted in four manholes located at the northwest corner (manholes #11, #12, and #14) and southwest corner (manhole #15) of the KHL (Figure 1). Monitoring of the manholes did not result in detections of methane at concentrations above the LEL in any of the four manholes.

In accordance with the contingency actions in Section 3.6 of the O&M Plan (ARCADIS 2013a), if methane gas is observed at any of the perimeter monitoring locations at concentrations greater than the LEL, then the adjacent property owner will be notified of the elevated methane concentrations detected at the perimeter of the KHL. As such, the Kalamazoo Metal Recyclers, Inc. (KMR) was notified on June 13, 2013 in a letter discussing the recent detections of methane gas at concentrations above the LEL in gas probes GW-18 and GW-19 located along the western property boundary of the KHL (Georgia-Pacific 2013a). The letter indicated that, based on discussions between Georgia-Pacific and the MDEQ, it was agreed

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<sup>1</sup>The caps on gas probes GW-5, GW-7, GW-9, GW-10, and GW-11 could not be removed during the monitoring event to collect water level measurements within the gas probes.



Mr. Keith Krawczyk  
June 20, 2013

the methane detections along the western property boundary of the KHL do not pose a risk to personnel employed at the KMR facility due to the presence of the concrete slab floor covering the ground surface and the absence of any subsurface structures at the facility.

Additionally, during the recent installation of a new force main between the existing 72-inch sanitary sewer line northwest of the KHL and ending at the Riverview Pump Station, the City's contractor (Jones & Henry Engineers, Ltd.) used hand-held air monitors to measure gas levels in the excavation areas where personnel were entering the excavations. As indicated in an email from the contractor to Georgia-Pacific (Jones & Henry Engineers, Ltd. 2013), monitoring did not reveal any concentrations exceeding levels required for personnel to enter the excavation areas, which further indicates that methane gas is not migrating off-site through the sanitary sewer pipe at concentrations above the LEL.

Based on the aforementioned information that was discussed with MDEQ and provided by Georgia-Pacific to KMR regarding the methane detections along the perimeter of the KHL to adjacent properties, Georgia-Pacific does not intent to submit a remediation plan.

The next round of data collection (i.e., the 2013 third quarter landfill gas monitoring event) will be conducted in August 2013.

If you have any questions or comments, please do not hesitate to contact me at 315.671.9233.

Sincerely,

ARCADIS

Patrick McGuire  
Principal Environmental Engineer

#### Attachments

Copies:

Garry Griffith, P.E., Georgia-Pacific LLC (transmitted via e-mail)  
Michael Berkoff, USEPA Region 5  
Steve Taplin, Terra Contracting, LLC (transmitted via e-mail)  
Matt Johnson, Senior Civil Engineer, City of Kalamazoo  
Roberta Welke, Southwest Region Engineer, Michigan Department of Transportation  
Dawn Penniman, P.E., ARCADIS

**References**

- ARCADIS. 2013a. FINAL Operation and Maintenance Plan. King Highway Landfill Operable Unit 3. May 6, 2013.
- ARCADIS. 2013b. Investigation Plan for Off-Site Landfill Gas Migration at the King Highway Landfill. March 13, 2013.
- Georgia-Pacific. 2013. Detection of Methane Gas along the Western Property Boundary of the King Highway Landfill. June 13, 2013.
- Jones & Henry Engineers, Ltd. 2013. Email Regarding Force Main Installation Air Monitoring. June 7, 2013.
- MDEQ. 2013. Conclusion of Review of the Latest Draft Final Operation and Maintenance Plan and the Construction Completion Report. April 23, 2013.



## Tables

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 1 - Summary of May 31, 2013 Post-Closure Landfill Gas Monitoring Results**

Sample Location	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)	Top of Casing Elevation (feet)	Depth to Water <sup>1</sup> (feet)	Water Elevation (feet)	Top of Screen Elevation (feet)
GW-1	50.0	50.0	0.0	0.0	772.69	16.48	756.21	766.75
GW-2	51.5	41.8	0.0	6.7	768.36	N/A	N/A	762.26
GW-3	20.2	14.3	0.0	65.5	764.96	9.05	755.91	759.23
GW-4	45.9	48.5	0.8	4.8	770.21	13.88	756.33	764.44
GW-5	0.1	1.7	13.0	85.2	766.40	--	--	764.20
GW-6	0.1	0.8	15.4	83.7	765.10	N/A	N/A	762.90
GW-7	0.1	3.5	17.0	79.4	764.90	--	--	761.70
GW-8	0.1	9.8	11.0	79.1	764.60	N/A	N/A	762.40
GW-9	0.1	3.9	15.2	80.8	761.80	--	--	759.60
GW-10	0.1	9.9	6.3	83.7	767.30	--	--	765.10
GW-11	0.8	19.2	0.0	80.0	765.00	--	--	762.80
GW-12	0.0	6.1	11.5	82.4	764.50	7.94	756.56	762.30
GW-13 <sup>10</sup>	48.8	51.5	0.0	0.0	771.08	N/A	N/A	764.67
GW-14	10.0	2.2	4.9	82.9	762.61	5.55	757.06	757.12
GW-15	0.0	5.8	14.6	79.6	766.27	N/A	N/A	759.30
GW-15A	3.2	13.6	0.8	82.4	763.00	N/A	N/A	762.00
GW-16	0.0	2.6	15.8	81.6	764.44	N/A	N/A	757.82
GW-17	0.1	1.4	18.0	80.5	763.84	N/A	N/A	757.30
GW-18	21.4	3.7	0.2	74.7	771.80	12.15	759.65	765.80
GW-19	43.3	43.9	1.1	11.7	772.50	17.40	755.10	766.50
GW-20	0.1	8.1	10.9	80.9	779.00	12.50	766.50	771.00
GW-21	0.2	2.6	12.6	84.6	768.00	8.53	759.47	761.60
Storage Shed	0.2	0.0	21.0	78.8	NM	NM	NM	NM
Manhole #11	0.1	0.9	19.7	79.3	NM	NM	NM	NM
Manhole #12	0.0	0.9	19.4	79.7	NM	NM	NM	NM
Manhole #14	0.1	0.9	19.8	79.2	NM	NM	NM	NM
Manhole #15	0.3	1.1	19.7	78.9	NM	NM	NM	NM

**Notes:**

- <sup>1</sup> Depth to water was measured from the top of the casing for each gas probe.
- 1. Landfill gas monitoring results provided by ARCADIS using a GEM™ 500 portable gas analyzer.
- 2. CH<sub>4</sub> = Methane.
- 3. CO<sub>2</sub> = Carbon Dioxide.
- 4. O<sub>2</sub> = Oxygen.
- 5. GW = Permanent gas monitoring probe.
- 6. N/A = Water was not observed to be present in the gas probe during the time of measurement.
- 7. -- = Water depth measurements were not collected because the cap could not be removed from the gas probe.
- 8. NM = Water depth measurements were not collected from the four manholes, only landfill gas measurements.
- 9. Shaded methane results exceed the associated lower explosive limit (5%).
- 10. Due to rapid fluctuations in the gas concentration readings on the portable gas analyzer, the concentrations for all parameters (i.e., CH<sub>4</sub>, O<sub>2</sub>, and CO<sub>2</sub>) could not be determined from the same reading, producing a balance nitrogen concentration for GW-13 less than zero.

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-1	4/28/2003	46.3	42.9	1.9	8.9
GW-2	4/28/2003	47.2	29.5	4	19.3
GW-3	4/28/2003	74.1	19.1	0.6	6.3
GW-4	4/28/2003	47.1	39.9	2.6	10.4
BH-2	4/28/2003	52.3	46.8	0	0.9
BH-4	4/28/2003	17.8	8.8	9.8	63.6
BH-5	4/28/2003	2.8	5.2	15.2	76.8
BH-8	4/28/2003	55.4	43	0	1.6
BH-9	4/28/2003	26.6	33.2	2.2	38
BH-10	4/28/2003	0	0.7	18.6	80.7
BH-11	4/28/2003	0.3	4.3	13.3	82.1
BH-12	4/28/2003	0	0.3	20	79.7
BH-13	4/28/2003	0	1.3	19.3	79.4
BH-14	4/28/2003	0	1.9	17.7	80.4
BH-15	4/28/2003	9	4.3	9.7	77
BH-16	4/28/2003	0	1.4	18.7	79.9
BH-17	4/28/2003	0	0	20.5	79.5
BH-18	4/28/2003	1.3	0.7	19.7	78.3
GW-1	8/14/2003	49.6	43.7	1	5.7
GW-2	8/14/2003	59.2	35.2	0.9	4.7
GW-3	8/14/2003	48.6	30	1.6	19.8
GW-4	8/14/2003	41.4	43	0.2	15.4
BH-105	8/14/2003	46.8	43.6	0.8	8.8
BH-106	8/14/2003	4.1	16	2.1	77.8
BH-107	8/14/2003	29.6	27.9	2.9	39.6
BH-108	8/14/2003	1.8	11	10.6	76.6
BH-109	8/14/2003	3.6	3.2	15.3	77.9
BH-110	8/14/2003	0	1.1	18.9	80
BH-111	8/14/2003	0	9.3	6.6	84.1
BH-112	8/14/2003	27.6	29.6	0.9	41.9
BH-113	8/14/2003	31	26.2	3.7	39.1
BH-114	8/14/2003	0	1.1	18.6	80.3
BH-115	8/15/2003	36.2	25.9	1.9	36
BH-116	8/14/2003	0	5.1	11.4	83.5
BH-117	8/14/2003	0	1.6	17.3	81.1
BH-118	8/14/2003	31.2	34.3	1.5	33
BH-119	8/14/2003	33.5	26.5	4.4	35.6
BH-120	8/14/2003	3.8	7.2	14.4	74.6
BH-121	8/14/2003	0	0.1	19	80.9
BH-122	8/14/2003	0.6	0.8	18.9	79.7
GW-1	11/12/2003	56.9	42.4	0.5	0.2
GW-2	11/12/2003	65.9	33.4	0.5	0.2
GW-3	11/12/2003	68.7	28.1	3.1	0.1
GW-4	11/12/2003	59.2	34	6.7	0.1
V-1	11/12/2003	72.2	27.2	0.5	0.1
V-2	11/12/2003	51.9	28.7	4.5	14.9
V-3	11/12/2003	66.4	32.9	0.6	0.1
BH-202	11/12/2003	57.5	39.7	2.6	0.2
BH-203	11/12/2003	0.2	0.2	20.1	79.5
BH-204	11/12/2003	41.9	13.3	11	33.8
BH-205	11/12/2003	0.1	0	20.7	79.2
BH-206	11/12/2003	1.4	3.3	8.6	86.7
BH-207	11/12/2003	12.2	11.8	8.7	67.3
BH-208	11/12/2003	66	29.2	2.3	2.5
BH-209	11/12/2003	24.4	8.5	1.9	65.2
BH-210	11/12/2003	0.1	3	16.7	80.2
BH-211	11/12/2003	28.8	5.6	13.2	52.4
BH-212	11/12/2003	16.6	9.2	2.2	72
BH-213	11/13/2003	15.5	4.8	15.5	64.2
BH-214	11/12/2003	0.5	1.4	18.1	80
BH-215	11/12/2003	0.1	2.1	17.4	80.4
BH-216	11/12/2003	0	0	20.9	79.1
BH-217	11/12/2003	0	0.8	20.6	78.6

See Notes on Page 22.

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-218	11/12/2003	0	1.2	19.8	79
BH-219	11/12/2003	0	0	21.1	78.9
BH-220	11/12/2003	0	0	20.8	79.2
BH-221	11/12/2003	0.1	5.7	8.5	85.7
BH-222	11/12/2003	0	1.5	17.9	80.6
BH-223	11/12/2003	0	1.2	19.4	79.4
BH-230	11/12/2003	65.6	23.8	0.7	9.9
BH-231	11/12/2003	0.5	0.9	20.5	78.1
BH-232	11/12/2003	57.7	30.1	3.2	9
BH-233	11/12/2003	0.6	0.1	18.5	80.8
BH-234	11/12/2003	0.1	0.9	19.8	79.2
GW-1	12/8/2003	57.3	42.1	0.4	0.2
GW-2	12/8/2003	65.4	32.0	0.7	1.9
GW-3	12/8/2003	65.9	14.6	0.8	18.7
GW-4	12/8/2003	63.0	36.1	0.8	0.1
BH-301	12/8/2003	55.6	26.3	4.1	14.0
BH-302	12/8/2003	6.4	2.1	16.7	74.8
BH-303	12/8/2003	9.7	6.7	14.5	69.1
BH-304	12/8/2003	4.2	6.9	9.3	79.6
BH-305	12/8/2003	60.3	33.4	1.6	4.7
BH-306	12/9/2003	5.5	2.8	14.7	77.0
BH-307	12/8/2003	2.4	1.6	17.3	78.7
BH-312	12/8/2003	0	0.5	20.3	79.2
BH-313	12/8/2003	31.7	12.6	8.2	47.5
BH-314	12/8/2003	0	1.8	17.7	80.5
BH-315	12/9/2003	2.9	4.4	12.3	80.4
BH-316	12/8/2003	0	0.1	20.4	79.5
BH-317	12/8/2003	0	4.2	15.2	80.6
BH-318	12/8/2003	0	0.3	19.0	80.7
GW-1	2/24/2004	21.3	17.8	10.1	50.8
GW-2	2/24/2004	34.9	24	6.4	34.7
GW-3	2/24/2004	0.1	0	19.5	80.4
GW-3	2/24/2004	0	0	20.1	79.9
GW-4	2/24/2004	8	6.5	16.1	69.4
GW-4	2/24/2004	0	0	19.2	80.8
V-1	2/24/2004	0	0	20.1	79.9
V-2	2/24/2004	13.5	7.3	16	63.2
V-3	2/24/2004	39	20.3	10.1	30.6
BH-10	2/24/2004	19.4	12.1	16.6	51.9
BH-105	2/24/2004	19.1	8.1	9.9	62.9
BH-106	2/24/2004	3.1	1.3	17.8	77.8
BH-107	2/24/2004	15.3	12.4	9.3	63
BH-108	2/24/2004	2.1	1.8	16.4	79.7
BH-110	2/24/2004	15.2	11.7	4.9	68.2
BH-111	2/24/2004	7.6	5	11.1	76.3
BH-112	2/24/2004	0.6	2.2	18.4	78.8
BH-113	2/24/2004	0	2.3	15.9	81.8
BH-114	2/24/2004	0	0.5	18.3	81.2
BH-115	2/24/2004	0	0	19.9	80.1
BH-116	2/24/2004	0	0.7	16.8	82.5
BH-117	2/24/2004	0	0	19.6	80.4
BH-118	2/24/2004	0	0.1	19	80.9
BH-119	2/24/2004	20.6	7.7	10	61.7
BH-120	2/24/2004	2.4	7	13	77.6
BH-126	2/24/2004	33.1	16.5	14.3	36.1
BH-127	2/24/2004	19.5	10.8	13.9	55.8
BH-128	2/24/2004	0	0	19.9	80.1
BH-129	2/24/2004	42.3	26.2	15.7	15.8
BH-130	2/24/2004	1.3	0.6	19.2	78.9
BH-131	2/24/2004	54.9	32.3	12.6	0.2
BH-132	2/24/2004	0.8	0.4	18.3	80.5
BH-133	2/24/2004	0	0.7	19.5	79.8

See Notes on Page 22.

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
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**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-1	5/20/2004	51.3	32.3	0.1	16.3
GW-2	5/20/2004	62.0	37.3	0.5	0.2
GW-3	5/20/2004	69.2	30.2	0.4	0.2
GW-4	5/20/2004	54.7	45.1	0.1	0.1
V-1	5/20/2004	55.3	22.9	6.2	15.6
V-2	5/20/2004	54.0	30.0	4.3	11.7
V-3	5/20/2004	59.3	40.2	0.3	0.2
BH-208	5/20/2004	0.4	1.6	19.9	78.1
BH-209	5/20/2004	0.2	0.5	19.5	79.8
BH-210	5/20/2004	14.1	12.1	5.2	68.6
BH-211	5/20/2004	0.1	2.8	18.1	79.0
BH-212	5/20/2004	28.3	13.5	3.8	54.4
BH-213	5/20/2004	0.2	2.7	16.5	80.6
BH-214	5/20/2004	0.1	1.9	18.5	79.5
BH-215	5/20/2004	67.9	21.9	1.8	8.4
BH-216	5/20/2004	0	1.7	19.0	79.3
BH-217	5/20/2004	0	3.5	15.7	80.8
BH-218	5/20/2004	24.9	23.8	4.6	46.7
BH-219	5/20/2004	8.8	10.2	10.9	70.1
BH-220	5/20/2004	0.2	0.7	20.4	78.7
BH-221	5/20/2004	10.4	7.9	7.3	74.4
BH-222	5/20/2004	17.0	8.9	5.0	69.1
BH-223	5/20/2004	0	0.1	21.1	78.8
BH-224	5/20/2004	0	7.1	9.5	83.4
BH-225	5/20/2004	0	1.9	19.4	78.7
BH-226	5/20/2004	0	2.0	17.1	80.9
BH-227	5/20/2004	0	1.0	20.1	78.9
BH-228	5/20/2004	15.8	11.7	11.7	60.8
BH-229	5/20/2004	7.3	9.4	8.0	75.3
BH-230	5/20/2004	2.0	2.4	16.4	79.3
BH-231	5/20/2004	44.8	40.2	1.9	13.1
BH-232	5/20/2004	1.3	2.1	16.0	80.6
BH-233	5/20/2004	0	0.1	21.2	78.7
BH-234	5/20/2004	45.5	36.8	2.2	15.5
BH-235	5/20/2004	8.8	3.3	17.7	70.2
BH-236	5/20/2004	2.1	1.0	17.6	79.3
BH-237	5/20/2004	0.5	1.5	18.6	79.4
GW-1	9/29/2004	41.9	35.4	4.2	18.5
GW-2	9/29/2004	37.8	24.9	7.7	29.6
GW-3	9/29/2004	36.2	25.7	5.4	32.7
GW-4	9/29/2004	35.7	32.9	5.3	26.1
V-1-1	9/29/2004	27.4	22.2	10.4	40
V-2-1	9/29/2004	44.1	19.4	7.2	29.3
V-2-2	9/29/2004	33.7	20.4	9.7	36.2
V-4-1	9/29/2004	0	0.4	20.6	79
V-4-2	9/29/2004	0	0.3	20.6	79.1
V-4-3	9/29/2004	0	0	20.7	79.3
BH-101	9/29/2004	43.7	39.6	2.5	14.2
BH-102	9/29/2004	34.7	38.3	1.1	25.9
BH-103	9/29/2004	16.9	31.9	0.8	50.4
BH-104	9/29/2004	11.1	26.7	2.9	59.3
BH-105	9/29/2004	11.1	27.3	0.9	60.7
BH-106	9/29/2004	42.1	21.3	8.2	28.4
BH-107	9/29/2004	1.3	1.4	18	79.3
BH-108	9/29/2004	43.4	28.9	1	26.7
BH-109	9/29/2004	26.2	9.4	2.2	62.2
BH-110	9/29/2004	1.5	9.8	7.1	81.6
BH-111	9/29/2004	0	6.8	12.9	80.3
BH-112	9/29/2004	1.4	11.2	3.6	83.8
BH-113	9/29/2004	0.5	2.6	17.1	79.8
BH-114	9/29/2004	25.4	11.2	2.4	61

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-201	9/29/2004	46.7	13.7	2.8	36.8
BH-202	9/29/2004	42.2	17.7	7.9	32.2
BH-203	9/29/2004	0	1.4	19.4	79.2
GW-1	12/16/2004	56.6	43.4	0	0
GW-2	12/16/2004	55.3	33.9	0	10.8
GW-3	12/16/2004	40.5	14.7	0.3	44.5
GW-4	12/16/2004	59.4	37.0	1.1	2.5
V-1-1	12/16/2004	60.7	38.9	0.4	0
V-2-1	12/16/2004	35.9	16.7	6.3	41.1
V-2-2	12/16/2004	46.8	22.4	6.8	24.0
V-4-1	12/16/2004	3.9	2.2	19.0	74.9
V-4-2	12/16/2004	0	0	20.4	79.6
V-4-3	12/16/2004	0	0	20.4	79.6
BH-101	12/16/2004	1.4	0.9	19.9	77.8
BH-102	12/16/2004	57.6	7.2	1.4	33.8
BH-103	12/16/2004	0	1.9	18.3	79.8
BH-104	12/16/2004	0	1.5	18.0	80.5
BH-105	12/16/2004	0.2	0.5	18.4	80.9
BH-106	12/16/2004	0	0.7	18.5	80.8
BH-107	12/16/2004	2.5	0.9	17.8	78.8
BH-201	12/16/2004	0	1.7	16.1	82.2
BH-202	12/16/2004	0.1	0.4	19.4	80.1
BH-203	12/16/2004	12.0	4.4	12.6	71.0
BH-204	12/16/2004	56.1	13.5	5.3	25.1
BH-205	12/16/2004	5.6	0.8	15.8	77.8
BH-301	12/16/2004	0	9.7	8.5	81.8
BH-401	12/16/2004	64.7	34.5	0.5	0.3
BH-402	12/16/2004	0.1	0.3	17.8	81.8
GW-1	3/15/2005	52.6	42.2	1.3	3.9
GW-2	3/15/2005	0.2	1.6	18.8	79.4
GW-3	3/15/2005	0	0	20.8	79.2
GW-4	3/15/2005	58.3	38.1	1.5	2.1
V-1-1	3/15/2005	20.4	11.2	15.2	53.2
V-2-1	3/15/2005	0	0	20.8	79.2
V-2-2	3/15/2005	5.3	1.8	19.3	73.6
V-4-1	3/15/2005	0	0.1	19.6	80.3
V-4-2	3/15/2005	2.7	1.6	19.0	76.7
V-4-3	3/15/2005	2.5	2.2	19.1	76.2
BH-101	3/15/2005	1.4	0.4	20.3	77.9
BH-104	3/15/2005	0.6	0.4	20.1	78.9
BH-105	3/15/2005	0	2.3	13.4	84.3
BH-107	3/15/2005	3.4	0.3	19.1	77.2
GW-1	5/26/2005	54.5	44.7	0.6	0.2
GW-2	5/26/2005	58.5	39.5	0.0	2.0
GW-3	5/26/2005	58.7	30.4	0.2	10.7
GW-4	5/26/2005	42.2	38.4	0.4	19.0
GW-5	5/26/2005	0.8	0.4	18.1	80.7
GW-6	5/26/2005	0.7	1.3	19.7	78.3
GW-7	5/26/2005	0.2	1.6	16.9	81.3
GW-8	5/26/2005	0.0	10.7	2.8	86.5
GW-9	5/26/2005	0.2	3.0	16.0	80.8
V-1-1	5/26/2005	12.2	7.9	17.1	62.8
V-2-1	5/26/2005	14.0	5.9	15.9	64.2
V-2-2	5/26/2005	23.3	13.0	12.6	51.1
V-3-1	5/26/2005	5.2	2.0	18.3	74.5
V-4-1	5/26/2005	3.6	4.1	16.0	76.3
V-4-2	5/26/2005	2.3	2.1	19.6	76.0
V-4-3	5/26/2005	1.6	2.4	18.7	77.3
BH-101	5/26/2005	1.2	2.4	18.3	78.1
BH-102	5/26/2005	0.6	1.1	15.4	82.9
BH-103	5/26/2005	0.0	0.9	19.3	79.8
BH-201	5/26/2005	10.9	6.4	15.4	67.3
BH-202	5/26/2005	0.3	1.0	18.8	79.9

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-203	5/26/2005	0.4	1.2	12.8	85.6
BH-301	5/26/2005	3.0	6.1	12.7	78.2
BH-302	5/26/2005	4.3	11.0	73.9	10.8
BH-303	5/26/2005	3.8	9.4	11.7	75.1
BH-304	5/26/2005	0.0	0.4	20.0	79.6
GW-1	8/18/2005	51.0	44.8	0.3	3.9
GW-2	8/18/2005	53.3	36.9	1.5	8.3
GW-3	8/18/2005	52.6	33.9	0.0	13.5
GW-4	8/18/2005	48.2	45.1	0.0	6.7
GW-5	8/18/2005	40.0	13.8	0.3	45.9
GW-6	8/18/2005	51.9	43.7	0.0	4.4
GW-7	8/18/2005	0.0	3.8	16.5	79.7
GW-8	8/18/2005	5.8	10.1	0.2	83.9
GW-9	8/18/2005	0.0	7.2	12.5	80.3
GW-10	8/18/2005	0.0	12.9	4.8	82.3
GW-11	8/18/2005	0.0	18.9	2.7	78.4
V-1-1	8/18/2005	52.3	47.6	0.0	0.1
V-2-2	8/18/2005	39.5	26.8	6.5	27.2
V-3-1	8/18/2005	14.9	16.4	8.3	60.4
V-4-1	8/18/2005	14.1	18.0	8.1	59.8
V-4-2	8/18/2005	20.6	24.1	6.0	49.3
V-4-3	8/18/2005	17.5	19.9	9.2	53.4
BH-101	8/18/2005	59.9	20.8	0.1	19.2
BH-102	8/18/2005	44.4	40.2	0.7	14.7
BH-103	8/18/2005	0.0	3.1	17.9	79.0
BH-104	8/18/2005	12.3	4.0	14.3	69.4
BH-105	8/18/2005	0.0	2.6	18.1	79.3
BH-106	8/18/2005	0.0	1.0	20.6	78.4
BH-201	8/18/2005	22.0	21.8	0.5	55.7
BH-202	8/18/2005	0.0	12.2	9.0	78.8
BH-203	8/18/2005	22.4	9.7	12.9	55.0
BH-204	8/18/2005	26.7	18.9	2.9	51.5
BH-205	8/18/2005	0.8	2.2	0.7	96.3
BH-301	8/18/2005	16.8	23.1	0.7	59.4
BH-302	8/18/2005	0.0	10.9	7.1	82.0
BH-303	8/18/2005	25.3	23.0	0.5	51.2
BH-304	8/18/2005	11.4	15.0	3.1	70.5
BH-305	8/18/2005	0.1	11.3	9.4	79.2
BH-306	8/18/2005	0.0	6.4	16.1	77.5
BH-307	8/18/2005	0.0	5.5	17.5	77.0
BH-701	8/18/2005	0.0	3.1	18.3	78.6
BH-801	8/18/2005	0.0	1.2	20.4	78.4
BH-802	8/18/2005	0.0	1.9	19.8	78.3
BH-100	8/18/2005	0.0	7.4	12.1	80.5
BH-100	8/18/2005	0.0	0.5	20.5	79.0
BH-110	8/18/2005	0.0	3.6	18.2	78.2
BH-110	8/18/2005	0.0	10.2	11.6	78.2
GW-1	11/8/2005	53.2	45.3	0.2	1.3
GW-2	11/8/2005	41.8	30.6	3.2	24.4
GW-3	11/8/2005	6.2	8.0	14.5	71.3
GW-4	11/8/2005	48.8	39.0	0.4	11.8
GW-5	11/8/2005	24.5	12.6	0.2	62.7
GW-6	11/8/2005	53.6	39.4	0.4	6.6
GW-7	11/8/2005	0.0	3.2	16.8	80.0
GW-8	11/8/2005	0.0	13.4	0.6	86.0
GW-9	11/8/2005	0.0	3.8	15.4	80.8
GW-10	11/8/2005	0.0	9.5	7.0	83.5
GW-11	11/8/2005	0.0	12.1	6.0	81.9
BH-101	11/8/2005	27.0	13.8	5.3	53.9
BH-102	11/8/2005	26.0	32.5	0.3	41.2
BH-103	11/8/2005	0.0	2.1	17.4	80.5
BH-104	11/8/2005	0.0	8.1	7.6	84.3
BH-201	11/8/2005	22.5	23.5	0.4	53.6

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
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**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-202	11/8/2005	0.0	6.2	13.8	80.0
BH-301	11/8/2005	0.0	18.4	1.7	79.9
BH-601	11/8/2005	5.4	12.2	0.4	82.0
BH-602	11/8/2005	0.0	3.5	15.8	80.7
V-1-1	11/8/2005	54.2	45.2	0.6	0.0
V-2-1	11/8/2005	10.0	6.9	14.5	68.6
V-2-2	11/8/2005	47.4	28.1	5.8	18.7
V-3-1	11/8/2005	5.6	2.0	18.9	73.5
V-4-1	11/8/2005	1.0	2.9	17.7	78.4
V-4-2	11/8/2005	0.0	0.0	20.5	79.5
V-4-3	11/8/2005	3.3	7.0	13.8	75.9
GW-1	2/8/2006	56.0	43.7	0.3	0.0
GW-2	2/8/2006	41.0	24.9	2.5	31.6
GW-3	2/8/2006	0.8	4.8	10.3	84.1
GW-4	2/8/2006	63.1	36.2	0.7	0.0
GW-5	2/8/2006	36.7	4.0	1.0	58.3
GW-6	2/8/2006	83.7	14.3	0.0	2.0
GW-7	2/8/2006	0.0	1.5	17.7	80.8
GW-8	2/8/2006	20.0	5.5	1.9	72.6
GW-9	2/8/2006	0.0	4.3	15.1	80.6
GW-10	2/8/2006	0.0	7.4	1.4	91.2
GW-11	2/8/2006	0.0	1.2	19.0	79.8
BH-201 <sup>4</sup>	2/8/2006	6.1	4.2	13.3	76.4
BH-501	2/8/2006	0.1	1.0	16.1	82.8
BH-502	2/8/2006	0.0	0.2	17.9	81.9
BH-801	2/8/2006	0.0	4.4	15.5	80.1
BH-430	2/8/2006	32.9	18.1	3.5	45.5
BH-430	2/8/2006	34.2	22.9	0.0	42.9
BH-430	2/8/2006	7.6	7.9	11.9	72.6
BH-430	2/8/2006	0.7	0.4	17.3	81.6
V-1-1	2/8/2006	56.8	39.6	3.6	0.0
V-2-1	2/8/2006	16.2	6.5	15.8	61.5
V-2-2	2/8/2006	29.6	10.5	13.5	46.4
V-3-1	2/8/2006	2.8	0.7	20.5	76.0
V-4-1	2/8/2006	0.5	0.5	19.0	80.0
V-4-2	2/8/2006	0.0	0.1	19.0	80.9
V-4-3	2/8/2006	22.1	11.5	11.1	55.3
GW-1	5/8/2006	52.8	47.2	0.0	0.0
GW-2	5/8/2006	58.2	40.4	0.0	1.4
GW-3	5/8/2006	66.2	28.0	0.0	5.8
GW-4	5/8/2006	0.0	46.3	0.0	53.7
GW-5	5/8/2006	31.6	4.5	0.0	63.9
GW-6	5/8/2006	61.8	29.4	0.0	8.8
GW-7	5/8/2006	0.0	1.5	16.1	82.4
GW-8	5/8/2006	15.8	6.3	0.0	77.9
GW-9	5/8/2006	0.0	7.4	6.6	86.0
GW-10	5/8/2006	0.0	0.3	18.3	81.4
GW-11	5/8/2006	0.0	10.1	3.8	86.1
GW-12	5/8/2006	0.0	10.4	6.1	83.5
BH-201	5/8/2006	49.5	21.2	0.0	29.3
BH-202	5/8/2006	0.1	4.2	12.1	83.6
BH-301	5/8/2006	15.5	12.0	6.5	66.0
BH-302	5/8/2006	25.4	18.8	0.0	55.8
BH-303	5/8/2006	0.0	0.4	18.3	81.3
BH-304	5/8/2006	13.7	7.9	5.9	72.5
BH-305	5/8/2006	4.7	3.8	9.9	81.6
BH-306 <sup>5</sup>	5/8/2006	--	--	--	--
BH-307	5/8/2006	9.0	11.1	0.0	79.9
BH-308 <sup>5</sup>	5/8/2006	--	--	--	--
BH-309	5/8/2006	0.0	0.4	18.2	81.4
BH-310	5/8/2006	38.1	7.5	0.0	54.4
BH-311	5/8/2006	0.0	0.4	18.3	81.3
BH-312	5/8/2006	0.8	6.8	6.2	86.2

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**Georgia-Pacific, LLC**  
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**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-501	5/8/2006	0.0	0.9	17.2	81.9
BH-502	5/8/2006	0.0	4.1	7.4	88.5
BH-601	5/8/2006	51.1	8.6	0.0	40.3
BH-801	5/8/2006	3.4	12.8	0.0	83.8
BH-802	5/8/2006	0.0	0.8	16.7	82.5
V-1-1	5/8/2006	52.3	46.7	0.0	1.0
V-2-1	5/8/2006	44.0	29.7	0.0	26.3
V-2-2	5/8/2006	53.5	23.9	5.5	17.1
V-3-1	5/8/2006	26.4	9.4	12.2	52.0
V-4-1	5/8/2006	0.0	0.0	20.3	79.7
V-4-2	5/8/2006	0.0	0.0	20.5	79.5
V-4-3	5/8/2006	0.0	0.1	20.1	79.8
V-4-4	5/8/2006	0.0	0.0	20.2	79.8
V-4-5	5/8/2006	0.0	0.8	19.0	80.2
V-4-6	5/8/2006	0.0	0.0	20.0	80.0
GW-1	9/7/2006	53.6	46.4	0.0	0.0
GW-2	9/7/2006	42.0	30.2	5.7	22.1
GW-3	9/7/2006	49.9	26.5	3.2	20.4
GW-4	9/7/2006	50.4	44.9	0.9	3.8
GW-5	9/7/2006	46.1	8.7	0.0	45.2
GW-6	9/7/2006	60.7	38.2	0.0	1.1
GW-7	9/7/2006	0.0	5.0	14.8	80.2
GW-8	9/7/2006	34.6	5.8	0.0	59.6
GW-9	9/7/2006	1.4	13.5	0.1	85.0
GW-10	9/7/2006	0.0	0.6	20.2	79.2
GW-11	9/7/2006	0.3	8.0	7.1	84.6
GW-12	9/7/2006	0.0	0.1	20.8	79.1
BH-201	9/7/2006	29.7	14.1	9.5	46.7
BH-202	9/7/2006	0.0	1.3	19.8	78.9
BH-301	9/7/2006	0.8	2.7	18.1	78.4
BH-302	9/7/2006	3.8	3.7	17.3	75.2
BH-303	9/7/2006	12.3	16.1	3.7	67.9
BH-304	9/7/2006	4.0	1.5	19.0	75.5
BH-305	9/7/2006	0.0	2.4	19.1	78.5
BH-501	9/7/2006	0.0	2.3	18.2	79.5
BH-502	9/7/2006	1.0	2.8	16.0	80.2
BH-601	9/7/2006	0.0	0.2	20.9	78.9
BH-801	9/7/2006	0.0	3.0	17.8	79.2
BH-802	9/7/2006	4.4	3.1	13.7	78.8
V-1-1	9/7/2006	30.7	28.6	8.7	32.0
V-2-1	9/7/2006	25.5	12.6	12.6	49.3
V-2-2	9/7/2006	18.6	11.3	14.1	56.0
V-3-1	9/7/2006	2.6	1.5	20.1	75.8
V-4-1	9/7/2006	0.0	0.1	20.8	79.1
V-4-2	9/7/2006	0.0	0.2	2.9	96.9
V-4-3	9/7/2006	0.0	0.0	20.8	79.2
V-4-4	9/7/2006	0.0	0.0	20.9	79.1
V-4-5	9/7/2006	0.0	0.1	20.8	79.1
V-4-6	9/7/2006	0.0	0.1	20.9	79.0
GW-1	11/8/2006	54.9	45.1	0.0	0.0
GW-2	11/8/2006	54.2	35.8	0.0	10.0
GW-3	11/8/2006	63.1	25.5	0.0	11.4
GW-4	11/8/2006	57.4	41.6	0.0	1.0
GW-5	11/8/2006	56.6	4.2	0.0	39.2
GW-6	11/8/2006	72.6	23.5	0.0	3.9
GW-7	11/8/2006	0.0	0.2	20.4	79.4
GW-8	11/8/2006	46.0	5.3	0.0	48.7
GW-9	11/8/2006	25.4	8.9	0.0	65.7
GW-10	11/8/2006	0.4	9.3	0.0	90.3
GW-11	11/8/2006	0.0	8.4	5.2	86.4
GW-12	11/8/2006	0.0	4.4	15.2	80.4
BH-201	11/8/2006	0.2	2.4	15.5	81.9
BH-301	11/8/2006	0.0	0.0	19.8	80.2

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
BH-501	11/8/2006	3.5	1.7	11.3	83.5
BH-502	11/8/2006	0.0	2.2	16.8	81.0
BH-801	11/8/2006	17.4	3.5	6.9	72.2
BH-802	11/8/2006	0.0	0.8	20.1	79.1
BH-901	11/8/2006	0.0	1.3	19.5	79.2
V-1-1	11/8/2006	54.9	43.8	0.0	1.3
V-2-1	11/8/2006	53.1	22.1	2.3	22.5
V-2-2	11/8/2006	51.4	27.2	0.0	21.4
V-3-1	11/8/2006	14.4	6.1	15.2	64.3
V-4-1	11/8/2006	17.4	15.2	9.9	57.5
V-4-2	11/8/2006	0.0	0.0	22.1	77.9
V-4-3	11/8/2006	5.8	8.3	13.1	72.8
V-4-4	11/8/2006	0.0	0.0	21.7	78.3
V-4-5	11/8/2006	0.0	0.1	21.7	78.2
V-4-6	11/8/2006	0.0	0.0	21.8	78.2
GW-1	2/8/2007	54.9	44.5	0.0	0.6
GW-2	2/8/2007	40.5	27.9	0.8	30.8
GW-3	2/8/2007	34.8	9.6	2.8	52.8
GW-4 <sup>6</sup>	2/8/2007	60.5	39.5	0.0	0.0
GW-5	2/8/2007	49.9	3.3	0.0	46.8
GW-6 <sup>7</sup>	2/8/2007	17.6	2.8	16.2	63.4
GW-7	2/8/2007	0.0	0.1	20.8	79.1
GW-8	2/8/2007	0.9	2.5	14.0	82.6
GW-9	2/8/2007	0.0	0.7	19.9	79.4
GW-10	2/8/2007	0.0	7.3	1.4	91.3
GW-11	2/8/2007	0.0	0.2	20.7	79.1
GW-12	2/8/2007	0.0	0.8	19.6	79.6
BH-201	2/8/2007	0.0	0.1	21.1	78.8
BH-501	2/8/2007	0.0	0.1	20.6	79.3
BH-502	2/8/2007	0.0	0.1	20.6	79.3
V-1-1	2/8/2007	23.5	17.7	11.8	47.0
V-2-1	2/8/2007	6.4	3.3	18.5	71.8
V-2-2	2/8/2007	18.6	8.5	15.1	57.8
V-3-1	2/8/2007	5.9	1.7	19.4	73.0
V-4-1	2/8/2007	0.0	0.0	20.8	79.2
V-4-2	2/8/2007	0.0	0.0	20.8	79.2
V-4-3	2/8/2007	0.1	0.2	20.0	79.7
V-4-4	2/8/2007	0.0	0.1	20.8	79.1
V-4-5	2/8/2007	0.0	0.0	20.8	79.2
V-4-6	2/8/2007	0.0	0.0	20.8	79.2
GW-1	5/10/2007	52.8	46.8	0.2	0.2
GW-2	5/10/2007	61.5	38.0	0.2	0.3
GW-3	5/10/2007	46.8	20.0	20.1	13.1
GW-4	5/10/2007	50.2	44.6	0.4	4.8
GW-5	5/10/2007	26.2	6.4	1.6	65.8
GW-6	5/10/2007	64.5	24.9	0.4	10.2
GW-7	5/10/2007	0.0	1.6	18.6	79.8
GW-8	5/10/2007	17.0	7.8	0.4	74.8
GW-9	5/10/2007	0.0	14.4	0.9	84.7
GW-10	5/10/2007	0.0	1.1	18.9	80.0
GW-11	5/10/2007	0.0	4.1	13.3	82.6
GW-12	5/10/2007	0.0	3.0	15.0	82.0
BH-201	5/10/2007	0.0	0.7	20.0	79.3
BH-301	5/10/2007	0.0	0.5	20.4	79.1
BH-501	5/10/2007	0.0	0.8	20.2	79.0
BH-502	5/10/2007	0.0	2.4	17.1	80.5
BH-801	5/10/2007	0.0	1.8	19.0	79.2
BH-802	5/10/2007	0.0	0.4	20.6	79.0
V-1-1	5/10/2007	57.0	42.4	0.1	0.5
V-2-1	5/10/2007	35.0	15.0	9.6	40.4
V-2-2	5/10/2007	33.7	18.4	8.2	39.7
V-3-1	5/10/2007	4.0	1.8	19.2	75.0
V-4-1	5/10/2007	14.6	19.7	6.4	59.3

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-4-2	5/10/2007	7.0	4.1	18.2	70.7
V-4-3	5/10/2007	0.3	2.0	16.0	81.7
V-4-4	5/10/2007	0.0	0.4	20.7	78.9
V-4-5	5/10/2007	0.0	2.8	17.2	80.0
V-4-6	5/10/2007	0.0	5.2	16.1	78.7
GW-1	8/8/2007	50.5	45.0	0.0	4.5
GW-2	8/8/2007	41.5	36.6	0.0	21.9
GW-3	8/8/2007	33.0	24.9	5.5	36.6
GW-4	8/8/2007	40.7	41.5	0.0	17.8
GW-5	8/8/2007	8.6	11.2	0.6	79.6
GW-6	8/8/2007	4.6	6.0	14.0	75.4
GW-7	8/8/2007	0.0	2.2	15.7	82.1
GW-8	8/8/2007	0.0	7.2	11.1	81.7
GW-9	8/8/2007	0.0	5.4	12.4	82.2
GW-10	8/8/2007	0.0	3.4	13.6	83.0
GW-11	8/8/2007	0.0	12.0	6.7	81.3
GW-12	8/8/2007	0.0	2.9	14.3	82.8
BH-201	8/8/2007	0.0	4.0	14.5	81.5
BH-301	8/8/2007	4.3	11.1	9.0	75.6
BH-501	8/8/2007	0.0	5.0	11.9	83.1
BH-502	8/8/2007	0.0	1.4	16.8	81.8
V-1-1	8/8/2007	51.8	47.2	0.0	1.0
V-2-1	8/8/2007	1.5	0.7	17.4	80.4
V-2-2	8/8/2007	41.4	28.0	5.5	25.1
V-3-1	8/8/2007	0.7	0.3	18.0	81.0
V-4-1	8/8/2007	0.0	0.0	18.3	81.7
V-4-2	8/8/2007	0.0	0.3	18.0	81.7
V-4-3	8/8/2007	0.0	0.2	18.0	81.8
V-4-4	8/8/2007	0.0	0.3	18.0	81.7
V-4-5	8/8/2007	0.0	13.4	6.4	80.2
V-4-6	8/8/2007	0.0	15.1	4.9	80.0
GW-1	10/31/2007	54.1	45.7	0.1	0.1
GW-2	10/31/2007	58.9	40.9	0.1	0.1
GW-3	10/31/2007	41.6	18.8	2.5	37.1
GW-4	10/31/2007	23.3	18.9	11.3	46.5
GW-5	10/31/2007	23.6	6.1	0.2	70.1
GW-6	10/31/2007	70.6	29.1	0.1	0.2
GW-7	10/31/2007	0.0	3.3	16.1	80.6
GW-8	10/31/2007	9.4	8.9	0.2	81.5
GW-9	10/31/2007	11.5	11.6	0.1	76.8
GW-10	10/31/2007	0.0	1.3	17.9	80.8
GW-11	10/31/2007	0.0	1.4	18.1	80.5
GW-12	10/31/2007	0.0	4.5	15.5	80.0
BH-201	10/31/2007	0.0	0.9	19.1	80.0
BH-301	10/31/2007	42.7	20.2	3.1	34.0
BH-302	10/31/2007	0.0	0.1	20.4	79.5
BH-501	10/31/2007	0.0	1.9	17.1	81.0
BH-502	10/31/2007	0.0	0.5	19.4	80.1
BH-701	10/31/2007	0.0	3.5	16.0	80.5
BH-801	10/31/2007	0.0	2.6	14.1	83.3
BH-802	10/31/2007	0.0	1.0	19.3	79.7
BH-901	10/31/2007	0.0	0.8	18.8	80.4
V-1-1	10/31/2007	54.9	45.0	0.1	0.0
V-2-1	10/31/2007	67.8	30.2	0.6	1.4
V-2-2	10/31/2007	59.3	31.5	1.8	7.4
V-3-1	10/31/2007	19.2	8.5	13.7	58.6
V-4-1	10/31/2007	0.0	0.0	20.4	79.6
V-4-2	10/31/2007	0.0	0.0	20.3	79.7
V-4-3	10/31/2007	0.0	0.0	20.4	79.6
V-4-4	10/31/2007	0.0	0.0	20.3	79.7
V-4-5	10/31/2007	0.0	0.0	20.4	79.6
V-4-6	10/31/2007	0.0	0.0	20.4	79.6

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-1	2/14/2008	55.6	44.2	0.2	0.0
GW-2	2/14/2008	46.9	31.7	3.1	18.3
GW-3	2/14/2008	0.2	0.4	21.6	77.8
GW-4	2/14/2008	58.3	40.6	1.1	0.0
GW-5	2/14/2008	11.5	5.8	1.8	80.9
GW-6	2/14/2008	10.2	4.1	14.1	71.6
GW-7	2/14/2008	0.0	0.4	20.7	78.9
GW-8	2/14/2008	0.0	1.0	20.2	78.8
GW-9	2/14/2008	0.0	1.0	19.4	79.6
GW-10	2/14/2008	NA	NA	NA	NA
GW-11	2/14/2008	0.0	0.8	20.4	78.8
GW-12	2/14/2008	0.2	0.6	17.7	81.5
V-1-1	2/14/2008	20.4	18.7	12.9	48.0
V-2-1	2/14/2008	18.9	10.7	12.5	57.9
V-2-2	2/14/2008	24.8	12.8	14.7	47.7
V-3-1	2/14/2008	0.5	0.5	21.6	77.4
V-4-1	2/14/2008	0.0	0.1	21.4	78.5
V-4-2	2/14/2008	0.2	0.5	20.6	78.7
V-4-3	2/14/2008	0.9	1.5	19.9	77.7
V-4-4	2/14/2008	0.0	0.1	20.3	79.6
V-4-5	2/14/2008	0.0	0.4	20.1	79.5
V-4-6	2/14/2008	0.0	0.1	20.2	79.7
GW-1	5/15/2008	50.1	42.5	0.0	7.4
GW-2	5/15/2008	0.3	0.6	19.3	79.8
GW-3	5/15/2008	5.2	5.6	13.6	75.6
GW-4	5/15/2008	47.8	37.2	0.0	15.0
GW-5	5/15/2008	8.3	4.7	6.1	80.9
GW-6	5/15/2008	0.1	20.0	1.3	78.6
GW-7	5/15/2008	0.1	1.9	17.5	80.5
GW-8	5/15/2008	0.1	2.6	15.2	82.1
GW-9	5/15/2008	0.0	6.1	12.4	81.5
GW-10	5/15/2008	0.0	7.8	7.3	84.9
GW-11	5/15/2008	0.0	8.7	10.1	81.2
GW-12	5/15/2008	0.0	6.3	19.3	74.4
V-1-1	5/15/2008	54.4	43.8	0.0	1.8
V-1-2	5/15/2008	1.1	2.0	18.8	78.1
V-1-3	5/15/2008	0.0	0.0	20.1	79.9
V-1-4	5/15/2008	0.0	0.2	19.9	79.9
V-1-5	5/15/2008	0.1	0.0	20.1	79.8
V-1-6	5/15/2008	0.1	0.0	20.2	79.7
V-2-1	5/15/2008	1.9	3.6	15.9	78.6
V-2-2	5/15/2008	18.1	9.5	13.1	59.3
V-2-10	5/15/2008	0.1	0.0	19.8	80.1
V-3-1	5/15/2008	3.2	1.2	18.8	76.8
V-4-1	5/15/2008	0.0	0.0	20.1	79.9
V-4-2	5/15/2008	0.4	1.3	18.9	79.4
V-4-3	5/15/2008	0.1	0.8	19.3	79.8
V-4-4	5/15/2008	0.0	0.0	20.1	79.9
V-4-5	5/15/2008	0.0	0.0	20.1	79.9
V-4-6	5/15/2008	0.0	0.0	20.0	80.0
BH-201	8/6/2008	0.0	3.4	15.9	80.7
GW-1	8/6/2008	45.5	45.9	0.0	8.6
GW-2	8/6/2008	34.1	35.2	0.0	30.7
GW-3	8/6/2008	0.6	3.5	14.9	81.0
GW-4	8/6/2008	39.0	43.6	0.0	17.4
GW-5	8/6/2008	0.1	4.7	10.9	84.3
GW-6	8/6/2008	0.0	2.2	16.9	80.9
GW-7	8/6/2008	0.1	0.4	18.9	80.6
GW-8	8/6/2008	0.0	8.4	11.7	79.9
GW-9	8/6/2008	0.1	2.8	16.7	80.4
GW-10	8/6/2008	0.0	11.6	5.8	82.6
GW-11	8/6/2008	0.0	12.0	9.5	78.5
GW-12	8/6/2008	0.3	9.2	10.0	80.5

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
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**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-1-1	8/6/2008	51.4	47.7	0.0	0.9
V-1-2	8/6/2008	2.6	13.2	9.1	75.1
V-1-3	8/6/2008	0.2	0.3	19.7	79.8
V-1-4	8/6/2008	0.4	0.7	19.6	79.3
V-1-5	8/6/2008	0.3	0.9	19.3	79.5
V-1-6	8/6/2008	2.5	16.3	2.9	78.3
V-2-1	8/6/2008	29.7	16.7	8.6	45.0
V-2-2	8/6/2008	37.4	22.7	8.5	31.4
V-2-3	8/6/2008	0.2	0.1	19.6	80.1
V-2-10	8/6/2008	0.6	4.3	15.1	80.0
V-2-18	8/6/2008	0.1	0.4	19.6	79.9
V-3-1	8/6/2008	3.0	1.2	19.0	76.8
V-4-1	8/6/2008	0.0	0.3	19.7	80.0
V-4-2	8/6/2008	0.0	0.7	19.3	80.0
V-4-3	8/6/2008	0.0	0.2	19.7	80.1
V-4-4	8/6/2008	0.3	0.6	16.8	82.3
V-4-5	8/6/2008	0.3	0.4	19.7	79.6
V-4-6	8/6/2008	0.3	3.7	16.3	79.7
GW-1	11/5/2008	55.9	44.1	0.0	0.0
GW-2	11/5/2008	60.5	35.1	0.1	4.3
GW-3	11/5/2008	49.7	20.5	2.4	27.4
GW-4	11/5/2008	56.7	41.1	0.2	2.0
GW-5	11/5/2008	0.0	8.0	4.3	87.7
GW-6	11/5/2008	0.0	4.5	12.9	82.6
GW-7	11/5/2008	0.0	2.6	15.3	82.1
GW-8	11/5/2008	0.0	9.2	6.5	84.3
GW-9	11/5/2008	0.0	0.5	20.5	79.0
GW-10	11/5/2008	0.0	0.4	20.4	79.2
GW-11	11/5/2008	0.0	10.5	6.9	82.6
GW-12	11/5/2008	0.0	6.1	14.4	79.5
BH-201	11/5/2008	0.0	0.7	20.1	79.2
BH-301	11/5/2008	0.0	0.6	20.3	79.1
V-1-1	11/5/2008	55.8	44.2	0.0	0.0
V-1-2	11/5/2008	1.6	4.8	16.1	77.5
V-1-3	11/5/2008	0.0	0.1	20.5	79.4
V-1-4	11/5/2008	0.0	0.0	20.6	79.4
V-1-5	11/5/2008	0.0	0.3	20.3	79.4
V-1-6	11/5/2008	0.0	0.1	20.6	79.3
V-2-1	11/5/2008	50.9	22.1	5.9	21.1
V-2-2	11/5/2008	55.4	28.2	3.3	13.1
V-2-3	11/5/2008	0.1	0.2	20.7	79.0
V-2-10	11/5/2008	1.0	3.5	16.5	79.0
V-2-18	11/5/2008	0.0	0.0	21.0	79.0
V-4-1	11/5/2008	3.5	4.5	16.8	75.2
V-4-2	11/5/2008	4.2	8.8	12.4	74.6
V-4-3	11/5/2008	2.5	6.7	14.0	76.8
V-4-4	11/5/2008	0.0	0.0	21.1	78.9
V-4-5	11/5/2008	0.0	0.0	21.1	78.9
V-4-6	11/5/2008	0.0	0.0	20.8	79.2
GW-1	2/5/2009	56.5	39.5	4.0	0.0
GW-2	2/5/2009	0.1	0.2	19.4	80.3
GW-3	2/5/2009	0.1	0.2	19.7	80.0
GW-4	2/5/2009	0.0	0.2	19.0	80.8
GW-5	2/5/2009	0.1	4.0	11.3	84.6
GW-6	2/5/2009	0.1	0.6	18.4	80.9
GW-7	2/5/2009	0.1	0.3	19.5	80.1
GW-8	2/5/2009	0.1	4.2	16.2	79.5
GW-9	2/5/2009	0.1	1.5	18.4	80.0
GW-10	2/5/2009	0.1	0.2	19.7	80.0
GW-11	2/5/2009	0.1	0.3	18.4	81.2
GW-12	2/5/2009	0.1	0.6	17.6	81.7
V-1-1	2/5/2009	36.2	27.0	11.2	25.6
V-1-2	2/5/2009	1.2	1.9	19.0	77.9

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
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**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-1-3	2/5/2009	0.1	0.2	19.6	80.1
V-1-4	2/5/2009	0.1	0.2	19.7	80.0
V-1-5	2/5/2009	0.1	0.2	19.6	80.1
V-1-6	2/5/2009	0.1	0.3	19.6	80.0
V-2-1	2/5/2009	13.7	8.5	12.4	65.4
V-2-2	2/5/2009	16.4	9.1	13.0	61.5
V-2-3	2/5/2009	0.1	0.2	19.4	80.3
V-2-10	2/5/2009	0.1	0.2	19.2	80.5
V-2-18	2/5/2009	0.1	0.3	18.4	81.2
V-3-1	2/5/2009	1.9	0.8	16.5	80.8
V-4-1	2/5/2009	3.3	3.1	17.0	76.6
V-4-2	2/5/2009	0.9	1.1	17.9	80.1
V-4-3	2/5/2009	0.8	1.1	17.8	80.3
V-4-4	2/5/2009	0.1	0.2	18.0	81.7
V-4-5	2/5/2009	0.1	0.4	16.8	82.7
V-4-6	2/5/2009	0.1	1.2	17.4	81.3
GW-1	5/21/2009	52.6	46.1	0.4	0.9
GW-2	5/21/2009	48.8	36.5	0.4	14.3
GW-3	5/21/2009	13.5	6.3	10.6	69.6
GW-4	5/21/2009	52.1	46.5	0.5	0.9
GW-5	5/21/2009	0.0	7.5	6.8	85.7
GW-6	5/21/2009	0.0	3.9	11.1	85.0
GW-7	5/21/2009	0.0	1.8	16.7	81.5
GW-8	5/21/2009	0.0	6.1	12.0	81.9
GW-9	5/21/2009	0.0	2.6	16.6	80.8
GW-10	5/21/2009	0.0	7.7	6.9	85.4
GW-11	5/21/2009	0.0	14.0	6.3	79.7
GW-12	5/21/2009	0.0	2.6	15.4	82.0
BH-201	5/21/2009	0.1	0.7	18.5	80.7
BH-301	5/21/2009	0.0	0.2	19.2	80.6
V-1-1	5/21/2009	52.4	42.8	1.4	3.4
V-1-2	5/21/2009	0.0	0.0	19.4	80.6
V-1-3	5/21/2009	0.0	0.0	19.4	80.6
V-1-4	5/21/2009	0.0	0.0	19.3	80.7
V-1-5	5/21/2009	2.1	5.6	14.5	77.8
V-1-6	5/21/2009	0.0	0.0	19.1	80.9
V-2-1	5/21/2009	28.5	13.1	11.1	47.3
V-2-2	5/21/2009	28.0	13.1	11.8	47.1
V-2-3	5/21/2009	0.0	0.0	19.3	80.7
V-2-10	5/21/2009	0.0	0.0	19.6	80.4
V-2-18	5/21/2009	0.0	0.0	19.5	80.5
V-3-1	5/21/2009	3.2	0.9	18.8	77.1
V-4-1	5/21/2009	1.7	5.9	13.6	78.8
V-4-2	5/21/2009	0.0	0.0	19.4	80.6
V-4-3	5/21/2009	0.0	0.2	19.3	80.5
V-4-4	5/21/2009	0.0	0.0	19.6	80.4
V-4-5	5/21/2009	0.0	0.0	19.5	80.5
V-4-6	5/21/2009	0.0	0.0	19.6	80.4
GW-1	8/19/2009	52.6	46.0	0.4	1.0
GW-2	8/19/2009	56.7	39.9	0.5	2.9
GW-3	8/19/2009	46.5	25.5	3.4	24.6
GW-4	8/19/2009	31.3	37.8	0.1	30.8
GW-5	8/19/2009	0.0	10.7	7.7	81.6
GW-6	8/19/2009	0.0	1.6	16.1	82.3
GW-7	8/19/2009	0.0	4.3	13.1	82.6
GW-8	8/19/2009	0.0	6.1	10.8	83.1
GW-9	8/19/2009	0.0	4.2	13.5	82.3
GW-10	8/19/2009	0.0	0.6	17.6	81.8
GW-11	8/19/2009	0.0	5.9	11.8	82.3
GW-12	8/19/2009	0.1	13.4	4.0	82.5
BH-201	8/19/2009	0.0	1.2	17.4	81.4
BH-301	8/19/2009	0.0	1.5	17.8	80.7
V-1-1	8/19/2009	29.3	27.8	8.0	34.9

See Notes on Page 22.

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-1-2	8/19/2009	10.3	11.9	11.3	66.5
V-1-3	8/19/2009	2.2	6.3	13.1	78.4
V-1-4	8/19/2009	0.0	0.1	19.2	80.7
V-1-5	8/19/2009	0.0	0.0	19.3	80.7
V-1-6	8/19/2009	0.0	0.0	19.3	80.7
V-2-1	8/19/2009	22.5	12.0	12.1	53.4
V-2-2	8/19/2009	39.6	23.5	6.9	30.0
V-2-3	8/19/2009	0.3	2.1	16.3	81.3
V-2-10	8/19/2009	0.5	2.7	15.5	81.3
V-2-18	8/19/2009	0.0	0.0	18.9	81.1
V-3-1	8/19/2009	1.9	1.0	18.3	78.8
V-4-1	8/19/2009	0.3	0.4	18.7	80.6
V-4-2	8/19/2009	0.0	0.0	18.9	81.1
V-4-3	8/19/2009	0.3	0.5	18.6	80.6
V-4-4	8/19/2009	0.2	0.4	17.9	81.5
V-4-5	8/19/2009	0.0	0.6	18.6	80.8
V-4-6	8/19/2009	0.3	11.5	8.5	79.7
GW-1	11/12/2009	56.9	43.0	0.1	0.0
GW-2	11/12/2009	56.6	37.8	0.0	5.6
GW-3	11/12/2009	4.5	5.6	11.7	78.2
GW-4	11/12/2009	60.0	39.8	0.2	0.0
GW-5	11/12/2009	0.0	9.3	5.7	85.0
GW-6	11/12/2009	0.0	1.7	17.0	81.3
GW-7	11/12/2009	0.0	3.6	16.3	80.1
GW-8	11/12/2009	0.0	5.4	13.4	81.2
GW-9	11/12/2009	0.0	1.8	18.5	79.7
GW-10	11/12/2009	0.0	3.2	14.0	82.8
GW-11	11/12/2009	0.0	1.4	18.5	80.1
GW-12	11/12/2009	0.0	4.0	16.6	79.4
BH-201	11/12/2009	1.7	5.0	14.6	78.7
V-1-1	11/12/2009	58.0	41.9	0.1	0.0
V-1-2	11/12/2009	0.9	3.3	17.8	78.0
V-1-3	11/12/2009	0.0	0.0	20.7	79.3
V-1-4	11/12/2009	0.0	0.1	20.5	79.4
V-1-5	11/12/2009	0.0	0.5	19.8	79.7
V-1-6	11/12/2009	0.0	0.1	20.4	79.5
V-2-1	11/12/2009	38.9	20.7	5.1	35.3
V-2-2	11/12/2009	43.6	21.8	7.0	27.6
V-2-3	11/12/2009	0.0	0.1	20.6	79.3
V-2-10	11/12/2009	0.7	0.7	19.7	78.9
V-2-18	11/12/2009	0.0	0.1	20.6	79.3
V-3-1	11/12/2009	1.6	0.7	20.0	77.7
V-4-1	11/12/2009	2.1	1.4	19.7	76.8
V-4-2	11/12/2009	0.0	0.1	20.6	79.3
V-4-3	11/12/2009	0.3	1.4	19.1	79.2
V-4-4	11/12/2009	0.0	0.1	20.6	79.3
V-4-5	11/12/2009	0.0	0.6	20.0	79.4
V-4-6	11/12/2009	0.0	0.1	20.5	79.4
GW-1	2/19/2010	0.7	0.9	20.3	78.1
GW-2	2/19/2010	0.0	0.2	20.6	79.2
GW-3	2/19/2010	44.9	15.9	0.0	39.2
GW-4	2/19/2010	45.5	38.1	0.6	15.8
GW-5	2/19/2010	0.0	0.2	19.4	80.4
GW-6	2/19/2010	0.0	0.0	20.2	79.8
GW-7	2/19/2010	0.0	0.0	20.5	79.5
GW-8	2/19/2010	0.0	0.5	19.0	80.5
GW-9	2/19/2010	0.0	0.8	19.8	79.4
GW-10	2/19/2010	0.0	0.0	20.1	79.9
GW-11	2/19/2010	0.0	0.0	20.4	79.6
GW-12	2/19/2010	0.0	0.0	20.6	79.4
BH-301	2/19/2010	0.0	0.0	20.3	79.7
V-1-1	2/19/2010	22.4	17.4	12.4	47.8
V-1-2	2/19/2010	0.3	1.3	18.8	79.6

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-1-3	2/19/2010	0.0	0.0	20.4	79.6
V-1-4	2/19/2010	0.0	0.0	20.5	79.5
V-1-5	2/19/2010	0.0	0.0	20.6	79.4
V-1-6	2/19/2010	0.0	0.0	20.6	79.4
V-2-1	2/19/2010	0.0	0.0	20.9	79.1
V-2-2	2/19/2010	0.0	0.0	19.8	80.2
V-2-3	2/19/2010	0.0	0.0	21.0	79.0
V-2-10	2/19/2010	0.0	0.0	21.0	79.0
V-2-18	2/19/2010	0.0	0.0	21.0	79.0
V-3-1	2/19/2010	0.0	0.0	21.0	79.0
V-4-1	2/19/2010	0.4	0.7	19.8	79.1
V-4-2	2/19/2010	0.0	0.0	20.6	79.4
V-4-3	2/19/2010	0.0	0.0	20.4	79.6
V-4-4	2/19/2010	0.0	0.0	20.6	79.4
V-4-5	2/19/2010	0.0	0.0	20.6	79.4
V-4-6	2/19/2010	0.0	0.0	19.4	80.6
GW-1	5/27/2010	52.4	47.4	0.2	0.0
GW-2	5/27/2010	57.2	42.5	0.3	0.0
GW-3	5/27/2010	47.7	22.1	4.8	25.4
GW-4	5/27/2010	31.8	34.0	0.1	34.1
GW-5	5/27/2010	0.1	1.0	17.3	81.6
GW-6	5/27/2010	0.3	0.6	19.7	79.4
GW-7	5/27/2010	0.1	1.7	15.3	82.9
GW-8	5/27/2010	0.1	4.3	13.2	82.4
GW-9	5/27/2010	0.0	1.8	17.8	80.4
GW-10	5/27/2010	0.0	0.4	20.1	79.5
GW-11	5/27/2010	41.3	24.2	0.0	34.5
GW-12	5/27/2010	0.0	1.4	17.7	80.9
BH-1101	5/27/2010	0.8	1.5	18.7	79.0
BH-1102	5/27/2010	51.2	42.6	4.2	2.0
BH-1103	5/27/2010	50.1	45.3	4.4	0.2
BH-1104	5/27/2010	28.2	19.2	8.2	44.4
BH-1105	5/27/2010	0.4	3.9	12.7	83.0
BH-1106	5/27/2010	42.2	49.5	2.4	5.9
BH-1107	5/27/2010	0.1	1.5	16.9	81.5
BH-1108	5/27/2010	51.7	47.7	0.6	0.0
BH-1109	5/27/2010	46.2	17.2	0.5	36.1
BH-1110	5/27/2010	0.2	0.6	9.9	89.3
BH-1111	5/27/2010	49.3	50.2	0.5	0.0
BH-1112	5/27/2010	2.1	11.6	9.4	76.9
BH-1113	5/27/2010	47.4	46.3	0.3	6.0
BH-1114	5/27/2010	0.0	4.7	15.3	80.0
V-1-1	5/27/2010	53.2	46.7	0.1	0.0
V-1-2	5/27/2010	12.0	13.4	12.9	61.7
V-1-3	5/27/2010	2.8	0.2	20.5	76.5
V-1-4	5/27/2010	0.1	0.1	20.6	79.2
V-1-5	5/27/2010	0.1	0.6	19.9	79.4
V-1-6	5/27/2010	0.1	0.0	20.7	79.2
V-2-1	5/27/2010	45.6	24.2	6.9	23.3
V-2-2	5/27/2010	34.2	17.6	9.5	38.7
V-2-3	5/27/2010	5.8	15.0	4.1	75.1
V-2-10	5/27/2010	3.4	7.7	15.5	73.4
V-2-18	5/27/2010	0.3	1.3	19.9	78.5
V-3-1	5/27/2010	2.8	1.0	19.7	76.5
V-4-1	5/27/2010	15.0	6.4	12.4	66.2
V-4-2	5/27/2010	0.0	0.3	20.2	79.5
V-4-3	5/27/2010	0.3	1.2	19.6	78.9
V-4-4	5/27/2010	0.6	1.9	19.6	77.9
V-4-5	5/27/2010	0.4	0.4	19.9	79.3
V-4-6	5/27/2010	0.6	3.0	15.3	81.1
GW-1	8/26/2010	50.5	49.5	0.0	0.0
GW-2	8/26/2010	26.5	26.5	5.5	41.5
GW-3	8/26/2010	39.3	25.4	2.2	33.1

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-4	8/26/2010	38.8	46.2	0.0	15.0
GW-5	8/26/2010	0.2	2.4	17.0	80.4
GW-6	8/26/2010	0.2	0.9	19.6	79.3
GW-7	8/26/2010	0.3	0.9	19.7	79.1
GW-8	8/26/2010	0.2	8.8	13.9	77.1
GW-9	8/26/2010	0.3	2.2	18.7	78.8
GW-10	8/26/2010	0.2	1.1	18.6	80.1
GW-11	8/26/2010	0.2	20.3	2.5	77.0
GW-12	8/26/2010	0.3	0.3	20.3	79.1
BH-201	8/26/2010	3.4	2.7	18.0	75.9
BH-301	8/26/2010	0.2	0.9	19.0	79.9
V-1-1	8/26/2010	29.9	29.6	6.3	34.2
V-1-2	8/26/2010	0.1	0.2	20.2	79.5
V-1-3	8/26/2010	1.2	4.2	16.6	78.0
V-1-4	8/26/2010	0.2	0.5	20.0	79.3
V-1-5	8/26/2010	0.1	0.2	20.2	79.5
V-1-6	8/26/2010	0.0	0.1	20.2	79.7
V-2-1	8/26/2010	1.8	1.2	19.4	77.6
V-2-2	8/26/2010	18.8	11.3	14.0	55.9
V-2-3	8/26/2010	0.2	0.0	20.5	79.3
V-2-10	8/26/2010	0.2	0.0	20.4	79.4
V-2-18	8/26/2010	0.2	0.2	20.2	79.4
V-3-1	8/26/2010	0.3	0.1	20.4	79.2
V-4-1	8/26/2010	0.7	11.3	19.5	68.5
V-4-2	8/26/2010	0.2	0.4	20.4	79.0
V-4-3	8/26/2010	0.2	1.3	18.2	80.3
V-4-4	8/26/2010	0.2	0.0	20.6	79.2
V-4-5	8/26/2010	0.2	0.1	20.5	79.2
V-4-6	8/26/2010	0.3	0.0	20.5	79.2
GW-1	11/19/2010	48.7	41.1	1.5	8.7
GW-2	11/19/2010	46.2	36.1	0.0	17.7
GW-3	11/19/2010	0.0	8.7	11.2	80.1
GW-4	11/19/2010	34.8	35.6	0.0	29.6
GW-5	11/19/2010	0.0	11.3	6.9	81.8
GW-6	11/19/2010	0.0	3.8	15.5	80.7
GW-7	11/19/2010	0.0	2.4	18.2	79.4
GW-8	11/19/2010	0.0	7.1	14.2	78.7
GW-9	11/19/2010	0.0	1.8	18.9	79.3
GW-10	11/19/2010	0.0	0.3	19.7	80.0
GW-11	11/19/2010	0.0	9.5	9.0	81.5
GW-12	11/19/2010	0.0	0.0	20.0	80.0
BH-201	11/19/2010	0.0	1.5	18.7	79.8
V-1-1	11/19/2010	53.0	42.2	1.3	3.5
V-1-2	11/19/2010	1.0	1.2	17.3	80.5
V-1-3	11/19/2010	0.0	0.0	20.1	79.9
V-1-4	11/19/2010	0.0	0.0	20.1	79.9
V-1-5	11/19/2010	0.0	0.0	20.0	80.0
V-1-6	11/19/2010	0.0	0.0	20.0	80.0
V-2-1	11/19/2010	21.7	16.9	3.8	57.6
V-2-2	11/19/2010	37.5	18.4	9.3	34.8
V-2-3	11/19/2010	0.0	0.0	20.0	80.0
V-2-10	11/19/2010	0.0	0.0	20.0	80.0
V-2-18	11/19/2010	0.0	0.0	20.0	80.0
V-3-1	11/19/2010	2.8	1.0	19.2	77.0
V-4-1	11/19/2010	0.0	0.9	19.2	79.9
V-4-2	11/19/2010	0.0	0.3	19.5	80.2
V-4-3	11/19/2010	0.0	0.5	19.3	80.2
V-4-4	11/19/2010	0.0	0.0	20.0	80.0
V-4-5	11/19/2010	0.0	0.6	19.9	79.5
V-4-6	11/19/2010	0.0	0.0	20.1	79.9
GW-1	2/28/2011	56.5	43.3	0.0	0.2
GW-2	2/28/2011	0.0	0.3	19.3	80.4
GW-3	2/28/2011	6.4	4.2	14.4	75.0

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-4	2/28/2011	1.5	2.5	17.6	78.4
GW-5	2/28/2011	0.0	0.2	19.3	80.5
GW-6	2/28/2011	0.0	0.0	19.7	80.3
GW-7	2/28/2011	0.0	1.6	17.2	81.2
GW-8	2/28/2011	0.0	0.9	17.8	81.3
GW-9	2/28/2011	0.0	0.0	19.3	80.7
GW-10	2/28/2011	0.0	0.0	19.2	80.8
GW-11	2/28/2011	11.0	5.0	0.6	83.4
GW-12	2/28/2011	0.0	0.0	19.8	80.2
V-1-1	2/28/2011	0.5	0.5	19.8	79.2
V-1-2	2/28/2011	0.1	0.5	20.3	79.1
V-1-3	2/28/2011	0.0	0.0	20.8	79.2
V-1-4	2/28/2011	0.0	0.0	20.8	79.2
V-1-5	2/28/2011	0.0	0.0	20.9	79.1
V-1-6	2/28/2011	0.0	0.0	20.9	79.1
V-2-1	2/28/2011	0.0	0.0	20.3	79.7
V-2-2	2/28/2011	0.0	0.0	20.0	80.0
V-2-3	2/28/2011	0.0	0.0	20.5	79.5
V-2-10	2/28/2011	0.0	0.0	20.6	79.4
V-2-18	2/28/2011	0.0	0.0	20.6	79.4
V-3-1	2/28/2011	0.0	0.0	20.1	79.9
V-4-1	2/28/2011	0.0	0.0	19.6	80.4
V-4-2	2/28/2011	0.0	0.0	19.8	80.2
V-4-3	2/28/2011	0.0	0.3	19.7	80.0
V-4-4	2/28/2011	0.0	0.0	19.8	80.2
V-4-5	2/28/2011	0.0	0.0	19.9	80.1
V-4-6	2/28/2011	0.0	0.0	19.9	80.1
GW-1	5/12/2011	47.6	48.7	0.1	3.6
GW-2	5/12/2011	48.7	35.1	0.0	16.2
GW-3	5/12/2011	0.1	5.2	12.9	81.8
GW-4	5/12/2011	56.8	43.1	0.0	0.1
GW-5	5/12/2011	0.0	8.1	10.0	81.9
GW-6	5/12/2011	0.0	1.4	19.4	79.2
GW-7	5/12/2011	0.0	2.3	18.2	79.5
GW-8	5/12/2011	0.0	2.6	17.0	80.4
GW-9	5/12/2011	0.0	2.2	18.3	79.5
GW-10	5/12/2011	0.0	0.2	20.7	79.1
GW-11	5/12/2011	0.0	8.1	12.6	79.3
GW-12	5/12/2011	0.1	0.0	20.7	79.2
BH-101	5/12/2011	0.0	0.4	20.2	79.4
BH-201	5/12/2011	11.6	7.1	13.8	67.5
BH-202	5/12/2011	0.0	0.1	20.8	79.1
V-1-1	5/12/2011	49.3	50.7	0.0	0.0
V-1-2	5/12/2011	0.0	0.0	20.9	79.1
V-1-3	5/12/2011	0.0	1.7	19.0	79.3
V-1-4	5/12/2011	0.0	0.0	21.0	79.0
V-1-5	5/12/2011	0.0	0.0	21.0	79.0
V-1-6	5/12/2011	0.0	0.0	21.0	79.0
V-2-1	5/12/2011	25.5	13.4	11.2	49.9
V-2-2	5/12/2011	36.4	20.3	8.7	34.6
V-2-3	5/12/2011	1.1	4.3	15.4	79.2
V-2-10	5/12/2011	0.7	1.8	17.2	80.3
V-2-18	5/12/2011	0.4	0.6	19.8	79.2
V-3-1	5/12/2011	0.9	0.3	20.5	78.3
V-4-1	5/12/2011	0.0	0.0	20.5	79.5
V-4-2	5/12/2011	0.2	0.1	20.8	78.9
V-4-3	5/12/2011	1.8	1.4	20.1	76.7
V-4-4	5/12/2011	0.1	0.2	20.5	79.2
V-4-5	5/12/2011	0.1	1.9	18.4	79.6
V-4-6	5/12/2011	0.1	2.5	18.1	79.3
GW-1	8/18/2011	52.9	46.7	0.4	0.0
GW-2	8/18/2011	54.8	44.9	0.1	0.2
GW-3	8/18/2011	28.2	19.3	5.4	47.1

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-4	8/18/2011	47.9	46.3	1.1	4.7
GW-5	8/18/2011	0.0	17.1	5.0	77.9
GW-6	8/18/2011	0.0	0.5	22.1	77.4
GW-7	8/18/2011	0.0	2.0	22.1	75.9
GW-8	8/18/2011	0.0	1.4	21.3	77.3
GW-9	8/18/2011	0.0	2.4	21.2	76.4
GW-10	8/18/2011	0.0	0.4	22.9	76.7
GW-11	8/18/2011	6.5	24.7	0.3	68.5
GW-12	8/18/2011	0.0	11.8	10.3	77.9
BH-201	8/18/2011	3.0	14.5	6.5	76.0
BH-1101	8/18/2011	0.0	0.5	22.9	76.6
BH-V-4-1-1	8/18/2011	0.0	11.6	11.7	76.7
BH-V-4-1-2	8/18/2011	46.8	41.8	3.2	8.2
BH-V-4-1-3	8/18/2011	22.4	20.8	12.6	44.2
BH-V-4-1-4	8/18/2011	28.1	23.7	10.4	37.8
BH-V-4-1-5	8/18/2011	0.0	8.7	21.1	70.2
BH-V-4-1-6	8/18/2011	30.9	36.0	6.4	26.7
BH-V-4-1-7	8/18/2011	1.4	15.3	10.3	73.0
BH-V-4-1-8	8/18/2011	0.0	1.6	21.7	76.7
BH-V-4-1-9	8/18/2011	0.0	7.4	16.2	76.4
V-1-1	8/18/2011	49.6	50.1	0.2	0.1
V-1-2	8/18/2011	0.1	0.2	21.2	78.5
V-1-3	8/18/2011	19.6	6.8	14.6	59.0
V-1-4	8/18/2011	0.4	0.2	21.0	78.4
V-1-5	8/18/2011	0.2	1.1	19.3	79.4
V-1-6	8/18/2011	0.0	0.5	20.2	79.3
V-2-1	8/18/2011	26.3	13.1	14.3	46.3
V-2-2	8/18/2011	--	--	--	--
V-2-10	8/18/2011	0.5	2.6	17.6	79.3
V-2-18	8/18/2011	0.0	0.9	20.0	79.1
V-2-3	8/18/2011	0.0	0.0	21.5	78.5
V-3-1	8/18/2011	1.1	0.5	21.4	77.0
V-4-1	8/18/2011	19.9	27.9	2.6	49.6
V-4-2	8/18/2011	0.0	0.0	22.8	77.2
V-4-3	8/18/2011	0.0	0.2	22.5	77.3
V-4-4	8/18/2011	0.0	0.4	22.1	77.5
V-4-5	8/18/2011	0.0	1.0	19.0	80.0
V-4-6	8/18/2011	0.0	4.9	17.3	77.8
GW-1	11/17/2011	61.0	37.7	0.9	0.4
GW-2	11/17/2011	36.7	33.9	0.1	29.3
GW-3	11/17/2011	1.1	1.6	15.8	81.5
GW-4	11/17/2011	62.8	34.8	2.4	0.0
GW-5	11/17/2011	0.0	13.2	7.1	79.7
GW-6	11/17/2011	0.0	0.1	18.0	81.9
GW-7	11/17/2011	0.0	1.3	17.1	81.6
GW-8	11/17/2011	0.0	11.4	8.8	79.8
GW-9	11/17/2011	0.0	1.2	17.0	81.8
GW-10	11/17/2011	0.0	2.4	14.8	82.8
GW-11	11/17/2011	0.0	15.4	4.5	80.1
GW-12	11/17/2011	0.0	0.0	20.1	79.9
GW-13	11/17/2011	60.1	39.3	0.3	0.3
GW-14	11/17/2011	2.8	3.7	5.6	87.9
GW-15	11/17/2011	0.0	1.3	16.1	82.6
GW-16	11/17/2011	0.0	0.5	17.5	82.0
GW-17	11/17/2011	0.0	1.6	16.5	81.9
BH-201	11/17/2011	0.0	3.1	16.7	80.2
BH-1301	11/17/2011	0.0	0.0	17.9	82.1
V-1-1	11/17/2011	41.4	30.2	7.1	21.3
V-1-2	11/17/2011	1.2	2.6	17.2	79.0
V-1-3	11/17/2011	0.0	0.0	19.1	80.9
V-1-4	11/17/2011	0.0	0.0	19.1	80.9
V-1-5	11/17/2011	0.0	0.0	19.1	80.9
V-1-6	11/17/2011	0.0	0.0	18.4	81.6

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-2-1	11/17/2011	0.0	0.0	18.8	81.2
V-2-2	11/17/2011	11.3	5.5	15.9	67.3
V-2-3	11/17/2011	0.0	0.0	19.0	81.0
V-2-10	11/17/2011	0.0	0.0	19.0	81.0
V-2-18	11/17/2011	0.0	0.0	18.8	81.2
V-3-1	11/17/2011	0.0	0.0	18.9	81.1
V-4-1	11/17/2011	0.5	0.5	19.8	79.2
V-4-2	11/17/2011	1.1	1.5	18.6	78.8
V-4-3	11/17/2011	0.1	1.0	19.1	79.8
V-4-4	11/17/2011	0.0	0.1	19.9	80.0
V-4-5	11/17/2011	0.0	0.0	20.2	79.8
V-4-6	11/17/2011	0.0	0.0	20.2	79.8
GW-1	2/16/2012	59.1	42.9	0.4	0.0
GW-2	2/16/2012	8.5	7.4	16.8	67.3
GW-3	2/16/2012	0.1	0.7	19.8	79.4
GW-4	2/16/2012	63.7	34.0	0.8	1.5
GW-5	2/16/2012	0.0	9.3	7.2	83.5
GW-6	2/16/2012	0.0	0.4	21.2	78.4
GW-7	2/16/2012	0.0	2.1	18.7	79.2
GW-8	2/16/2012	0.0	5.2	15.8	79.0
GW-9	2/16/2012	0.0	1.5	19.2	79.3
GW-10	2/16/2012	0.0	6.7	7.4	85.9
GW-11	2/16/2012	0.0	7.0	12.7	80.3
GW-12	2/16/2012	0.0	0.1	21.5	78.4
GW-13	2/16/2012	54.9	43.7	0.7	0.7
GW-14	2/16/2012	1.3	3.9	14.4	80.4
GW-15	2/16/2012	0.0	3.3	17.0	79.7
GW-16	2/16/2012	0.0	1.4	19.8	78.8
GW-17	2/16/2012	0.0	0.5	20.8	78.7
BH-201	2/16/2012	0.0	0.1	21.3	78.6
BH-1301	2/16/2012	0.0	0.6	21.2	78.2
BH-1302	2/16/2012	13.1	10.7	16.8	59.4
BH-1303	2/16/2012	0.0	0.2	21.4	78.4
V-1-1	2/16/2012	6.4	4.9	19.7	69.0
V-1-2	2/16/2012	1.4	1.9	21.0	75.7
V-1-3	2/16/2012	0.1	0.1	21.0	78.8
V-1-4	2/16/2012	0.0	0.1	21.9	78.0
V-1-5	2/16/2012	0.0	0.1	21.9	78.0
V-1-6	2/16/2012	0.0	0.1	21.9	78.0
V-2-1	2/16/2012	1.5	0.9	20.9	76.7
V-2-2	2/16/2012	15.0	7.5	17.0	60.5
V-2-3	2/16/2012	0.0	0.1	21.6	78.3
V-2-10	2/16/2012	0.0	0.1	21.7	78.2
V-2-18	2/16/2012	0.1	0.1	21.8	78.0
V-3-1	2/16/2012	0.0	0.1	21.5	78.4
V-4-1	2/16/2012	1.2	1.3	20.1	77.4
V-4-2	2/16/2012	0.6	0.8	20.5	78.1
V-4-3	2/16/2012	0.5	0.6	20.7	78.2
V-4-4	2/16/2012	0.0	0.1	21.5	78.4
V-4-5	2/16/2012	0.0	0.2	21.3	78.5
V-4-6	2/16/2012	0.1	0.1	21.2	78.6
GW-1	6/7/2012	47.6	45.9	0.0	6.5
GW-2	6/7/2012	41.5	38.5	0.0	20.0
GW-3	6/7/2012	40.2	20.2	0.0	39.6
GW-4	6/7/2012	33.3	40.6	0.3	25.8
GW-5	6/7/2012	0.3	10.8	10.3	78.6
GW-6	6/7/2012	0.3	4.5	16.9	78.3
GW-7	6/7/2012	0.2	2.6	18.0	79.2
GW-8	6/7/2012	0.3	6.9	15.3	77.5
GW-9	6/7/2012	0.3	3.2	18.5	78.0
GW-10	6/7/2012	0.0	8.6	14.7	76.6
GW-11	6/7/2012	0.2	13.3	9.3	77.2
GW-12	6/7/2012	0.2	4.4	16.5	78.9

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-13	6/7/2012	48.5	49.6	0.0	1.9
GW-14	6/7/2012	5.1	8.4	4.2	82.3
GW-15	6/7/2012	0.2	5.8	15.1	78.9
GW-16	6/7/2012	0.3	4.3	17.1	78.3
GW-17	6/7/2012	0.0	0.7	20.5	78.8
BH-3-01	6/7/2012	0.6	1.5	19.6	78.3
BH-13-01	6/7/2012	29.2	26.7	4.8	39.3
BH-13-02	6/7/2012	0.3	0.4	20.5	78.8
BH-13-03	6/7/2012	23.8	21.1	9.7	45.4
BH-13-04	6/7/2012	0.2	0.1	20.9	78.8
BH-13-05	6/7/2012	14.1	4.8	15.8	65.3
BH-13-06	6/7/2012	0.5	1.5	20.3	77.7
BH-13-07	6/7/2012	0.3	0.6	20.3	78.8
BH-13-08	6/7/2012	0.3	1.1	20.3	78.3
BH-14-01	6/7/2012	0.0	0.6	19.9	79.5
V-1-1	6/7/2012	29.0	25.1	9.5	36.4
V-1-2	6/7/2012	0.0	0.1	20.4	79.5
V-1-3	6/7/2012	0.2	0.5	20.2	79.1
V-1-4	6/7/2012	0.0	0.4	20.3	79.3
V-1-5	6/7/2012	0.3	3.3	16.7	79.7
V-1-6	6/7/2012	0.0	0.3	20.3	79.4
V-2-1	6/7/2012	5.8	2.6	18.7	72.9
V-2-2	6/7/2012	15.8	7.7	16.7	59.8
V-2-3	6/7/2012	0.0	0.5	20.1	79.4
V-2-10	6/7/2012	0.1	0.6	20.0	79.3
V-2-18	6/7/2012	0.0	1.1	19.4	79.5
V-3-1	6/7/2012	0.1	0.0	20.6	79.3
V-4-1	6/7/2012	0.4	0.5	20.5	78.6
V-4-2	6/7/2012	0.3	3.1	18.7	77.9
V-4-3	6/7/2012	0.1	3.2	18.3	78.4
V-4-4	6/7/2012	0.1	0.2	20.7	79.0
V-4-5	6/7/2012	0.2	0.0	20.9	78.9
V-4-6	6/7/2012	0.2	0.1	20.9	78.8
GW-1	8/23/2012	54.2	45.6	0.0	6.5
GW-2	8/23/2012	52.9	45.2	0.1	20.0
GW-3	8/23/2012	25.2	31.5	0.1	39.6
GW-4	8/23/2012	45.9	45.8	0.0	25.8
GW-5	8/23/2012	0.4	13.5	9.6	78.6
GW-6	8/23/2012	0.3	7.7	14.4	78.3
GW-7	8/23/2012	0.3	5.0	16.4	79.2
GW-8	8/23/2012	0.4	14.4	9.5	77.5
GW-9	8/23/2012	0.4	3.8	17.7	78.0
GW-10	8/23/2012	0.3	13.9	4.4	76.6
GW-11	8/23/2012	0.1	5.2	14.2	77.2
GW-12	8/23/2012	0.0	10.1	10.5	78.9
GW-13	8/23/2012	51.8	48.0	0.0	1.9
GW-14	8/23/2012	19.6	13.2	0.9	82.3
GW-15	8/23/2012	0.4	7.4	12.5	78.9
GW-16	9/6/2012	0.1	4.9	17.2	78.3
GW-17	9/6/2012	0.1	3.9	19.7	78.8
BH-2-01	8/23/2012	0.2	1.4	19.8	78.3
BH-13-01	8/23/2012	25.6	21.3	6.4	39.3
BH-13-02	8/23/2012	0.2	0.7	20.0	78.8
BH-13-03	8/23/2012	44.6	33.7	3.0	45.4
BH-13-04	8/23/2012	0.1	0.4	20.2	78.8
BH-13-05	8/23/2012	9.0	6.5	15.1	65.3
BH-13-06	8/23/2012	0.2	0.1	20.3	77.7
BH-13-07	8/23/2012	0.2	0.3	20.2	78.8
BH-13-08	8/23/2012	0.1	0.1	20.4	78.3
BH-14-01	8/23/2012	0.3	1.9	19.4	79.5
V-1-1	8/23/2012	44.4	34.9	9.6	36.4
V-1-2	8/23/2012	1.6	1.1	20.6	79.5
V-1-3	8/23/2012	0.2	0.0	21.4	79.1

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
V-1-4	8/23/2012	15.1	13.6	12.0	79.3
V-1-5	8/23/2012	0.4	0.1	21.1	79.7
V-1-6	8/23/2012	4.2	7.5	16.0	79.4
V-2-1	8/23/2012	19.8	11.1	14.5	72.9
V-2-2	8/23/2012	8.5	4.3	19.1	59.8
V-2-3	8/23/2012	0.2	0.0	21.4	79.4
V-2-10	8/23/2012	0.5	0.3	21.1	79.3
V-2-18	8/23/2012	0.4	0.0	21.2	79.5
V-3-1	9/6/2012	0.5	0.1	20.9	79.3
V-4-1	8/23/2012	0.2	0.2	20.3	78.6
V-4-2	8/23/2012	0.2	0.2	20.2	77.9
V-4-3	8/23/2012	0.1	0.1	20.4	78.4
V-4-4	8/23/2012	0.0	0.5	19.9	79.0
V-4-5	8/23/2012	0.0	0.2	20.4	78.9
V-4-6	8/23/2012	0.0	0.5	20.4	78.8
GW-1	11/8/2012	57.3	42.5	0	0.2
GW-2	11/8/2012	49.6	39	0	11.4
GW-3	11/8/2012	22	18.5	0.8	58.7
GW-4	11/8/2012	60.4	38.9	0	0.7
GW-5	11/8/2012	0	11.4	8.4	80.2
GW-6	11/8/2012	0	4.7	16	79.3
GW-7	11/8/2012	0	2.7	17.8	79.5
GW-8	11/8/2012	0	11.2	9.3	79.5
GW-9	11/8/2012	0	3	17.1	79.9
GW-10	11/8/2012	0	10.9	8.1	81
GW-11	11/8/2012	0	10.1	9.8	80.1
GW-12	11/8/2012	0	4.2	15.8	80
GW-13	11/8/2012	58	40.7	0.7	0.6
GW-14	11/8/2012	15.7	7.8	1.2	75.3
GW-15	11/8/2012	0	7.3	11.4	81.3
GW-16	11/8/2012	0	5.2	16	78.8
GW-17	11/8/2012	0	5.3	15.9	78.8
BH-2-01	11/8/2012	0	3	15.9	81.1
BH-13-01	11/8/2012	60	38.6	1.4	0
BH-13-02	11/8/2012	0	1.2	12.9	85.9
BH-13-03	11/8/2012	20.8	19	6	54.2
BH-13-04	11/8/2012	0	3.6	16.2	80.2
BH-13-05	11/8/2012	0	0.7	19.5	79.8
BH-14-01	11/8/2012	0	0.5	19.3	80.2
V-1-1	11/8/2012	38.8	33.5	5.3	22.4
V-1-2	11/8/2012	0.7	2.7	18.2	78.4
V-1-3	11/8/2012	0	0.1	20.6	79.3
V-1-4	11/8/2012	0	0.1	20.7	79.2
V-1-5	11/8/2012	0	0.1	20.6	79.3
V-1-6	11/8/2012	0	0.3	20.5	79.2
V-2-1	11/8/2012	0	0.1	20.2	79.7
V-2-2	11/8/2012	4.7	2.4	18	74.9
V-2-3	11/8/2012	0	0.1	20.6	79.3
V-2-10	11/8/2012	0	0.1	20.6	79.3
V-2-18	11/8/2012	0	0.1	20.6	79.3
V-3-1	11/8/2012	0	0.1	20.2	79.7
V-4-1	11/8/2012	0.4	0.5	20.1	79
V-4-2	11/8/2012	0	0.1	20.3	79.6
V-4-3	11/8/2012	0	0.8	19.6	79.6
V-4-4	11/8/2012	0	0.1	20.2	79.7
V-4-5	11/8/2012	0	0.5	19.8	79.7
V-4-6	11/8/2012	0	0.1	19.8	80.1
Storage Shed	11/8/2012	0	0	20.7	79.3
GW-1	2/21/2013	53.5	41.7	0.1	4.7
GW-2	2/21/2013	26.1	21.7	0.0	52.2
GW-3	2/21/2013	19.0	7.5	1.5	72.0
GW-4	2/21/2013	60.0	37.0	0.0	3.0
GW-5	2/21/2013	0.1	7.4	10.7	81.8

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**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

Sample Location	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance Nitrogen (%)
GW-6	2/21/2013	0.1	2.7	18.7	78.5
GW-7	2/21/2013	0.1	1.7	20.7	77.5
GW-8	2/21/2013	0.1	5.7	13.4	80.8
GW-9	2/21/2013	0.2	1.5	20.7	77.6
GW-10 <sup>12</sup>	2/21/2013	--	--	--	--
GW-11	2/21/2013	0.1	0.5	21.9	77.5
GW-12	2/21/2013	0.2	2.0	20.2	77.6
GW-13	2/21/2013	56.5	42.6	0.8	0.1
GW-14	2/21/2013	14.3	2.9	3.3	79.5
GW-15	2/21/2013	0.1	5.0	15.4	79.5
GW-16	2/21/2013	0.1	3.1	19.4	77.4
GW-17	2/21/2013	0.1	4.4	16.9	78.6
BH-14-01	2/21/2013	0.1	0.1	22.1	77.7
Storage Shed	2/21/2013	0.0	0.1	16.9	83.0
GW-1	5/31/2013	50.0	50.0	0.0	0.0
GW-2	5/31/2013	51.5	41.8	0.0	6.7
GW-3	5/31/2013	20.2	14.3	0.0	65.5
GW-4	5/31/2013	45.9	48.5	0.8	4.8
GW-5	5/31/2013	0.1	1.7	13.0	85.2
GW-6	5/31/2013	0.1	0.8	15.4	83.7
GW-7	5/31/2013	0.1	3.5	17.0	79.4
GW-8	5/31/2013	0.1	9.8	11.0	79.1
GW-9	5/31/2013	0.1	3.9	15.2	80.8
GW-10	5/31/2013	0.1	9.9	6.3	83.7
GW-11	5/31/2013	0.8	19.2	0.0	80.0
GW-12	5/31/2013	0.0	6.1	11.5	82.4
GW-13 <sup>11</sup>	5/31/2013	48.8	51.5	0.0	(0.3)
GW-14	5/31/2013	10.0	2.2	4.9	82.9
GW-15	5/31/2013	0.0	5.8	14.6	79.6
GW-15A	5/31/2013	3.2	13.6	0.8	82.4
GW-16	5/31/2013	0.0	2.6	15.8	81.6
GW-17	5/31/2013	0.1	1.4	18.0	80.5
GW-18	5/31/2013	21.4	3.7	0.2	74.7
GW-19	5/31/2013	43.3	43.9	1.1	11.7
GW-20	5/31/2013	0.1	8.1	10.9	80.9
GW-21	5/31/2013	0.2	2.6	12.6	84.6
Storage Shed	5/31/2013	0.2	0.0	21.0	78.8
Manhole #11	5/31/2013	0.1	0.9	19.7	79.3
Manhole #12	5/31/2013	0.0	0.9	19.4	79.7
Manhole #14	5/31/2013	0.1	0.9	19.8	79.2
Manhole #15	5/31/2013	0.3	1.1	19.7	78.9

See Notes on Page 22.

**Georgia-Pacific, LLC**  
**Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site**  
**King Highway Landfill Operable Unit 3**  
**Landfill Gas Monitoring Program**

**Table 2 - Summary of Post-Closure Landfill Gas Monitoring Results**

**Notes:**

1. Landfill gas monitoring results provided by CTI and Associates, Inc. using a GEM™ 2000 portable gas analyzer from April 27, 2003 to May 21, 2004.
2. Landfill gas monitoring results provided by Golder Associates, Inc. using a GEM™ 500 portable gas analyzer from September 29, 2004 to May 8, 2006, November 8, 2006, May 10, 2007, and August 6, 2008.
3. Landfill gas monitoring results provided by Golder Associates, Inc. using a GEM™ 2000 portable gas analyzer on September 7, 2006, February 8, 2007, August 8, 2007, October 31, 2007, May 15, 2008, November 5, 2008, February 5, 2009, May 21, 2009, August 19, 2009, and November 12, 2009
4. Landfill gas monitoring results provided by ARCADIS using a GEM™ 500 portable gas analyzer on February 19, 2010, May 27, 2010, August 26, 2010, November 19, 2010, February 28, 2011, May 12, 2011, August 18, 2011, November 17, 2011, February 16, 2012, June 7, 2012, August 23, 2012, September 6, 2012, November 8, 2012, February 21, 2013, and May 21, 2013
5. Landfill gas monitoring results provided by ARCADIS using a GEM™ 2000 portable gas analyzer on February 16, 2012.
6. On February 8, 2006, three other borings were attempted at the location of BH-201; but the boreholes were too wet to provide an accurate reading.
7. The water level at the location of the borehole was too high to provide an accurate reading.
8. On February 8, 2007, methane concentrations were detected above the lower explosive limit at GW-3; however, temporary boreholes were not installed to delineate the extent of the methane due to a health and safety risk created by snow covered rocks along the river.
9. On February 8, 2007, the valve on GW-6 was frozen and the cap could not be removed. The concentrations presented for GW-6 were obtained from a temporary borehole, which was installed directly next to well.
10. An additional temporary borehole(s) was not installed west of permanent gas probe GW-11 to delineate the extent of methane concentrations above the LEL toward the adjacent Kalamazoo Metal Recyclers, Inc. property due to the amount of debris located underneath the ground surface along the western property line of the KHL OU.
11. Due to rapid fluctuations in the gas concentration readings on the portable gas analyzer, the concentrations for all parameters (i.e., CH<sub>4</sub>, O<sub>2</sub>, and CO<sub>2</sub>) could not be determined from the same reading, producing a balance nitrogen concentration for GW-1 and GW-13 less than zero.
12. As verbally directed by MDEQ in the field, permanent gas probe GW-10 was not monitored due to low readings in GW-5, GW-6, and GW-7.
13. CH<sub>4</sub> = Methane.
14. CO<sub>2</sub> = Carbon Dioxide.
15. O<sub>2</sub> = Oxygen.
16. GW = Permanent gas monitoring probe.
17. BH = Temporary borehole.
18. V = Permanent gas vent.
19. -- = gas vent was not monitored.

**Figures**



